

PERMIT NO. NM0028355

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WQMP Water Quality Management Plan  
 WWTP Wastewater treatment plant

**STATE CERTIFICATION:** The permit is in the process of certification by the State agency following regulations promulgated at 40 CFR124.53. A draft permit and draft public notice will be sent to the District Engineer, Corps of Engineers; to the Regional Director of the U.S. Fish and Wildlife Service (USFWS); and to the National Marine Fisheries Service prior to the publication of that notice.

**TRIBAL CERTIFICATION:** Several Pueblos are located in the vicinity of Los Alamos National Laboratory (LANL). They include the following: San Ildefonso, Santa Clara, and Cochiti. The Santa Clara Pueblo has approved water quality standards (WQS); however, it is not adjacent to any stream where discharges are proposed to be authorized. Santa Clara is therefore not believed to be affected by the discharges proposed to be authorized by this permit. Neither San Ildefonso nor Cochiti Pueblo has submitted WQS for approval at this time; therefore, the only 401 certification is required from the State of New Mexico. However, pursuant to EPA's Tribal Consultation Policy, EPA offered, in letters of XXXX, 2019, to San Ildefonso and Cochiti Pueblos, respectively, the opportunity to engage in government-to-government consultation because they are located downstream of the facility's discharges.

**ENDANGERED SPECIES ACT:** In accordance with requirements under section 7(a)(2) of the Endangered Species Act, the EPA has reviewed this permit for its effect on listed threatened and endangered species and designated critical habitat. According to the most recent county listing of species, shown on the U.S. Fish and Wildlife Service's (~~the Service's~~) Information, Planning, and Conservation System (~~APAC~~), the following species with critical habitats may be present in the county where the proposed NPDES discharge occurs: ~~southwestern willow flycatcher (*Empidonax traillii extimus*), Mexican spotted owl (*Strix occidentalis lucida*) with critical habitats and , yellow-billed cuckoo (*Coccyzus americanus*), Jemez Mountains salamander (*Plethodon neomexicanus*).~~ The following species may be present in the county where the proposed NPDES discharge occurs without critical habitats: with critical habitats, and New Mexico meadow jumping mouse (*Zapus hudsonius luteus*), ~~southwestern willow flycatcher (*Empidonax traillii extimus*), and yellow-billed cuckoo (*Coccyzus americanus*).~~

During the re-issuance of this permit in 2000, the EPA conducted an informal consultation with the ~~U.S. Fish and Wildlife Service (USFWS)~~ ~~the FWS or the Service~~ (Cons. #2-22-01-I-018). That consultation was concluded on December 7, 2000 with the USFWS ~~Service~~ concurring by letter with EPA's determination that the re-issuance of the NPDES permit for LANL would have "no effect" on Mexican spotted owl and "may affect, not likely to adversely affect" on the bald eagle (*Haliaeetus leucocephalus*) and southwestern willow flycatcher.

The USFWS concluded in the 2000 consultation letter: "Based on information in the BE (Biological Evaluation), the USFWS ~~Service~~ believes that the reissued permit should slightly improve effluent water quality at LANL over the 5-year permit. In addition, re-issuance of the NPDES permit will not measurably alter stream morphology, flow patterns, temperatures, water chemistry, or slit loads in any of the affected intermittent tributaries or the Rio Grande. Therefore, the Service concurs with the EPA determination that the re-issuance of the NPDES

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permit for LANL will have “no effect” on the Mexican spotted owl, and “may affect, not likely to adversely affect” the bald eagle and southwestern willow flycatcher.” On August 9, 2007, the bald eagle was removed from the federal list of threatened and endangered species and it will not be analyzed further in this document.

New species listed since the 2000 consultation were analyzed using the LANL Habitat Management Plan (HMP; LANL 2017). The purpose of the HMP is to provide a management strategy for Endangered Species Act compliance through the protection of threatened and endangered species and their habitats on LANL property. The HMP consists of site plans for federally listed threatened or endangered species with a moderate or high probability of occurring at LANL. The HMP received concurrence from the U.S. Fish and Wildlife Service (USFWS) in 1999 (Consultation numbers 2-22-98-1-336 and 2-22-95-1-108) and it is updated as needed with new consultations. Provided that an activity at LANL falls within the requirements of the HMP, then the activity does not need further review from the USFWS and is considered to have the same determination as the HMP which is “may affect, not likely to adversely affect”. Activities that cannot follow the HMP requirements must go through an individual section-7 consultation. The EPA determines that the reissuance of this permit has “no effect” upon the baseline of the HMP.

Mexican spotted owl. The Mexican spotted owl prefers forested mountains and canyons with mature trees that create high, closed canopies, which are good for nesting. They also nest in stick nests built by other birds, in tree cavities and caves and on cliff ledges. The main threats to the Mexican spotted owl are starvation, fire, and loss of habitat due to logging, which also causes a greater risk of predation by great horned owls as a result of increased open space. -There have been no major changes with regards to the Mexican spotted owl since the 2000 consultation. Therefore, -reissuance of this permit will not contribute threats as listed above to the Mexican spotted owls and the -EPA maintains the “no effect” determination.

Southwestern willow flycatcher. The southwestern willow flycatcher is one of four subspecies of the willow flycatcher. The historic range of the southwestern willow flycatcher included Arizona, California, Colorado, New Mexico, Texas, Utah, and Mexico. Currently, this flycatcher breeds in riparian habitats from southern California to Arizona and New Mexico, plus southern Colorado, Utah and Nevada. There have been no major changes with regards to the southwestern willow flycatcher since the 2000 consultation. Therefore, the reissuance of this permit will not contribute any new threats to the southwestern willow flycatcher and the EPA maintains the “may affect, not likely to adversely affect” determination. LANL has provided a statement to EPA, via an email dated August 26, 2013, when EPA prepared the permit reissuance for LANL’s industrial wastewater discharge permit (NM0028355) that “The only area of habitat that we currently manage as Southwestern Willow Flycatcher habitat is the wetlands complex on the north side of Pajarito Road just east of TA 18. We have been surveying the area since the mid-90s and have never had any nest, but we occasionally do have migrant Willow Flycatchers come through. Since none of them have stayed and nested we cannot say that they were the endangered southwestern subspecies.” Based on the new information available, since the southwestern willow flycatcher has not been observed for staying or nesting in LANL since the mid-90s, EPA has determined that this permitting action has “no effect” on southwestern willow flycatcher.

**Commented [CDH1]:** Citation:

Los Alamos National Laboratory (LANL). 2017. Threatened and Endangered Species Habitat Management Plan for Los Alamos National Laboratory. Los Alamos National Laboratory report LA-UR-17-29454.

**Commented [CDH2]:** The 5 species listed have very different levels of “general ecology” information listed. The one here for the owl is appropriate. The flycatcher and mouse have nothing listed and the cuckoo and salamander have way too much listed. I’ll make them all consistent.

**Commented [CDH3]:** Only the DOE/NNSA Field Office can “make” a determination of “no effect” on DOE property in coordination with LANL Biologists. This species was covered under the 2000 consultation and was then listed as “may affect, not likely to adversely affect” and it must stay at that level. This species is also covered under the LANL HMP and that also makes it “may affect, not likely to adversely affect”.



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Yellow-billed Cuckoos. Yellow-billed Cuckoos use wooded habitat with dense cover and water nearby, including woodlands with low, scrubby, vegetation, overgrown orchards, abandoned farmland, and dense thickets along streams and marshes. ~~In the Midwest, look for cuckoos in shrublands of mixed willow and dogwood, and in dense stands of small trees such as American elm.~~ In the Southwest, ~~Yellow-billed Cuckoos breed in rare breeders in~~ riparian woodlands of willows, cottonwoods and dense stands of mesquite to breed. This species was not analyzed in the 2000 consultation. The LANL HMP does not have any requirements for this species since it does not contain any breeding habitat on-site. Therefore, the reissuance of this permit has “no effect” on this species.

~~Caterpillars top the list of Yellow-Billed Cuckoo prey: individual cuckoos eat thousands of caterpillars per season. On the East coast, periodic outbreaks of tent caterpillars draw cuckoos to the tentlike webs, where they may eat as many as 100 caterpillars at a sitting. Fall webworms and the larvae of gypsy, brown tailed, and white-marked tussock moths are also part of the cuckoo’s lepidopteran diet, often supplemented with beetles, ants, and spiders. They also take advantage of the annual outbreaks of cicadas, katydids, and crickets, and will hop to the ground to chase frogs and lizards. In summer and fall, cuckoos forage on small wild fruits, including elderberries, blackberries and wild grapes. In winter, fruit and seeds become a larger part of the diet.~~

~~Yellow-billed Cuckoo populations declined by 1.6 percent per year between 1966 and 2010, resulting in a cumulative decline of 51 percent, according to the North American Breeding Bird Survey. Partners in Flight estimates the global breeding population at about 9 million, with 84 percent breeding in the U.S., 10 percent in Mexico, and none in Canada. They score a 12 out of 20 on the Partners in Flight Continental Concern Score, and the 2014 State of the Birds Report listed them as a Common Bird in Steep Decline. In the West, much of the Yellow-Billed Cuckoo’s riparian habitat has been converted to farmland and housing, leading to significant population declines and the possible extirpation of cuckoos from British Columbia, Washington, Oregon, and Nevada. Once common in the California’s Central Valley, coastal valleys, and riparian habitats east of the Sierra Nevada, habitat loss now constrains the California breeding population to small numbers of birds along the Kern, Sacramento, Feather, and Lower Colorado Rivers. The western population of Yellow-billed Cuckoos was a candidate for federal endangered status. Sites replanted with riparian vegetation in southern California supported breeding birds within three years, demonstrating the potential for habitat restoration. As long-distance, nocturnal migrants, Yellow-Billed Cuckoos are vulnerable to collisions with tall buildings, cell towers, radio antennas, wind turbines, and other structures. EPA does not believe that this permitting action has any effect on the species.~~

Jemez Mountains Salamander. The Jemez Mountains salamander is endemic to the Jemez Mountains of north-central New Mexico and is found in Los Alamos, Rio Arriba, and Sandoval counties. It is one of two endemic plethodontid salamanders that occur in New Mexico. It occurs predominantly at elevations between 6,988 to 11,254 ft in mixed conifer forests with greater than 50 percent canopy cover. Plethodontid salamanders, which lack both lungs and gills, breathe through the mucous membranes in their mouth and throat and through their moist skin. The Jemez Mountains salamander is completely terrestrial and does not use standing surface water for any life stage. Present in its habitat year-round, the Jemez Mountains salamander spends most

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of its life underground, but can be found on the surface when conditions are warm and wet, approximately July through October. This species was not analyzed in the 2000 consultation. The reissuance of this permit is within the scope of the HMP requirements. Therefore, it has been determined that its reissuance “may affect, not likely to adversely affect” the Jemez Mountains salamander. LANE stated in the email of August 26, 2013, that “We do have habitat for the Jemez Mountains Salamander in a few different canyons that will be managed under our Habitat Management Plan once the federal listing is final which is any day now. We have confirmed the habitat in Los Alamos Canyon is occupied and the other areas we have modeled to be habitat are assumed to be occupied since the species is so hard to find and surveys destroy habitat.”

Based on information provided by the FWS in Federal Register, Vol. 78, No. 175, (September 10, 2013), the Jemez Mountains salamander is strictly terrestrial, does not possess lungs, and does not use standing surface water for any life stage. Respiration (the exchange of oxygen and carbon dioxide) occurs through the skin, which requires a moist microclimate for gas exchange. Substrate moisture through its effect on absorption and loss of water is probably the most important factor in the ecology of this terrestrial salamander. The Jemez Mountains salamander spends much of its life underground but can be found above ground when relative environmental conditions are warm and wet, which is typically from July through September; but occasional salamander observations have been made in May, June, and October. Relatively warm and wet environmental conditions suitable for salamander aboveground activity are likely influenced by melting snow and summer monsoon rains. When active above ground, the species is usually found under decaying logs, rocks, bark, or moss mats or inside decaying logs or stumps. Changes in pH (acidity or alkalinity) can affect plethodontid salamander behavioral and physiological responses. In one study of the Jemez Mountains salamander, soil pH was the single best indicator of relative abundance of salamanders at a site. Sites with salamanders had a soil pH of 6.6 ( $\pm 0.08$ ) and sites without salamanders had a soil pH of 6.2 ( $\pm 0.06$ ).

The following statements are also provided in the 2013 Federal Register. Subsurface geology and loose rocky soil structure may be an important attribute of underground salamander habitat. Geologic and moisture constraints likely limit the distribution of the species. Soil pH (acidity or alkalinity) may limit distribution as well. However, the composition of this subterranean habitat has not been fully investigated. ... The salamander's subterranean habitat appears to be deep, fractured, subterranean, igneous rock in areas with high soil moisture. Many terrestrial salamanders deposit eggs in well hidden sites, such as underground cavities, decaying logs, and moist rock crevices. Because the Jemez Mountain salamander spends the majority of its life below ground, eggs are probably laid and hatch underground. Although no egg clutches have been discovered in the wild, it is believed they are laid in the fractured interstices of subterranean, metamorphic rock. Jemez Mountain salamanders lack lungs; instead, they are cutaneous respirators (meaning they exchange gases, such as oxygen and carbon dioxide, through their skin). To support cutaneous respiration its skin must be moist and permeable. Jemez Mountain salamanders must address hydration needs above all other life history needs. The salamander must obtain its water from its habitat. In addition, it has no physiological mechanism to stop dehydration or water loss to the environment. Based on this information, it is likely that substrate moisture through its effect on absorption and loss of water is the most important factor in the ecology of this species. We suspect that these components may be a main driver behind salamander occurrences and distribution.

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LANL has developed a Habitat Management Plan (HMP) entitled “Threatened and Endangered Species Habitat Management Plan Area of Environmental Interest Site Plan for the Jemez Mountains Salamander”, dated July 2013. The HMP states that the primary threats to the JMS on Los Alamos National Laboratory (LANL) property are impacts to habitat quality or destruction of individual salamanders caused by LANL or Los Alamos County operations. Forested LANL property is also subject to impacts from severe wildland fire and wildfire suppression. During periods of the year when the salamanders are on the soil surface, when conditions are warm and wet (generally July—September), they are vulnerable to injury and mortality from soil disturbing activities, including operation of heavy equipment in core habitat. They also are at risk to be found and collected by people.

The HMP has identified areas of environmental interest (AEIs) which consist of two areas, a core area and a buffer area. The core habitat is defined as suitable habitat where the JMS occurs or may occur at LANL. The core habitat consists of sections of north facing slope that contain the required micro-habitat to support the salamanders. The buffer area is 328 feet (100 meters) wide extending outward from the edge of the core area. LANL has identified core habitats which contain contiguous and noncontiguous habitat areas. The largest contiguous section of habitat at LANL is in Los Alamos Canyon. There are two noncontiguous areas of habitat in Two-mile Canyon, four in Pajarito Canyon, one contiguous area in Cañon de Valle, and the entire Fenton Hill facility.

The HMP provides the guidelines for habitat alterations and allowable activities in AEI core and buffer areas for the salamanders. It describes what and where habitat alterations are allowed under the guidelines of this site plan. If an activity does not meet the restrictions given in the guidelines, the activity must be individually reviewed for ESA compliance through the section 7 consultation process. Because any activity conducted by LANL which may affect federally listed endangered species requires compliance with ESA section 7 consultation process and LANL has implemented the HMP to protect the species habitats, EPA determines that the reissuance of this permit has “no effect” upon the baseline of the HMP. If any site specific information indicates that to comply with the permit requirements may cause adverse effect to the species during the term of the permit, then EPA may reevaluate the effect for that specific Site.

New Mexico meadow jumping mouse. The New Mexico meadow jumping mouse is endemic to New Mexico, Arizona, and a small area of southern Colorado. The jumping mouse is grayish-brown on the back, yellowish-brown on the sides, and white underneath. The jumping mouse is a habitat specialist and it nests in dry soils, but uses moist, streamside, dense riparian/wetland vegetation up to an elevation of about 8,000 ft. New Mexico Meadow Jumping Mouse has been listed in the federal endangered species list. LANL stated in the email of August 26, 2013 that LANL does not have any New Mexico Meadow Jumping Mouse habitat at LANL. Experts from NMDGF (New Mexico Department of Game and Fish) have surveyed areas of possible habitat and they have confirmed that LANL does not have habitat for that species. Therefore, any federal action on the facility will have “no effect” on the species. This species was not analyzed in the 2000 consultation. The LANL HMP does not have any requirements for this species since it does not contain any breeding habitat on-site. Therefore, the

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reissuance of this permit has “no effect” on this species.

FINAL DETERMINATION: The public notice describes the procedures for the formulation of final determinations.

#### I. CHANGES FROM THE PREVIOUS PERMIT

EPA proposes some significant changes from the permit previously issued with an expiration date of September 30, 2019. Water quality-based effluent limitations change are due to new effluent flow or quality information.

- A. All Outfalls: Deleting monitoring requirements and/or effluent limitations for pollutants which new effluent characteristics demonstrated no Reasonable Potential.
- B. Outfall 001: Adding WET limit for Ceriodaphnia dubia; and adding/retaining effluent limitations for copper, zinc and PCBs.
- C. Outfall 051: Adding effluent limitations for copper and adjustable gross alpha.
- D. Outfall 05A055: Adding/revising effluent limitations for aluminum, copper, lead, selenium and zinc.
- E. Outfall 03A027: Adding/retaining effluent limitations for copper, zinc and PCBs; and deleting WET testing.
- F. Outfall 03A160: Adding/retaining effluent limitations for chromium (VI), mercury, selenium and cyanide.
- G. Updating WET languages.

#### II. APPLICANT LOCATION AND ACTIVITY

Under the Standard Industrial Classification (SIC) Codes 9922, 9711, 9661, and 9611, the applicant currently operates a large multi-disciplinary facility which conducts national defense research and development, scientific research, space research and technology development, and energy development.

The facility is located in Los Alamos County, New Mexico. The discharges are to receiving waters consisting of various tributaries in Waterbody Segment Code No. 20.6.4.126 and 20.6.4.128 of the Rio Grande Basin. Those discharges are:

Tech. Area	Outfall Number	Receiving Stream	Longitude/Latitude
TA-3	001	Sandia Canyon	106° 19' 09" W/ 35° 52' 26" N
TA-46	13S	Canada del Buey	106° 16' 33" W/ 35° 51' 08" N
TA-3	03A027	Sandia Canyon	106° 19' 09" W/ 35° 52' 26" N

# Industrial and Sanitary Outfalls

## 2019 NPDES Permit Re-Application

### Outfall 001 Fact Sheet

#### Utilities and Infrastructure (U&I)

Power Plant, Sanitary Wastewater System (SWWS) Facility, Sanitary Effluent Reclamation Facility (SERF), and Strategic Computing Complex (SCC) Cooling Towers



## Revision Log

<u>Revision No.</u>	<u>Date</u>	<u>Page Nos.</u>	<u>Change Description</u>
<u>0</u>	<u>3/18/2019</u>	<u>NA</u>	<u>Original</u>
<u>1</u>	<u>7/31/19</u>	<u>Page 8 of 12, Table 3</u>	<u>Revised to remove the chemical concentration percentages which may vary as chemicals are ordered.</u>
		<u>Page 9 of 12, Table 3</u>	<u>Updated the chemical information for C358 and R-630 for the SCC Cooling Towers. Deleted WEST C-825 because the chemical is no longer in use.</u>
		<u>Page 11 of 12, Table 6</u>	<u>Updated the potential chemicals associated with the SCC Cooling Towers to match Table 3.</u>
		<u>Attachment D, Page D-8 of 11</u>	<u>Revised Summary line for Aluminum to say "Aluminum, Total"</u>
		<u>Attachment D, Page D-8 of 11</u>	<u>Revised Summary line for Copper to say "Copper, Dissolved"</u>
		<u>Attachment D, Page D-9 of 9</u>	<u>Revised PCB to say "PCB, Total"</u>
		<u>Attachment D, Page D-9 of 9</u>	<u>Revised Gross Alpha to say "Adjusted Gross Alpha"</u>
		<u>Attachment E, Page E23</u>	<u>Replaced Sodium Hydroxide MSDS with a current SDS.</u>
-	-	-	-
-	-	-	-
-	-	-	-
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Source	Treatment Code	Description	Justification
SCC Cooling Towers	2-E	Dechlorination	Chlorine Scavenger Chemicals are Added
	2-H	Disinfection (other)	Chemicals are added to Control Microorganisms
	2-L	Reduction	Chemicals that are Antiscalant and Corrosion Inhibitors are Added

MIOX = mixed oxidation; RO = reverse osmosis; SCC = Strategic Computing Complex; SERF = Sanitary Effluent Reclamation Facility; SWWS = Sanitary Wastewater System

The water treatment processes identified in Table 2 utilize the chemicals identified in Table 3.

Source	Chemical Name	Reason for Use	Toxic Pollutant and/or Hazardous Substances Table 2C-3 or 2C-4	
Power Plant	Nalco 7408	Chlorine Scavenger Dechlorination	Sodium bisulfite	2C-4
	Bright Dyes FLT Yellow/Green Liquid	Water Line & Drain Tracing Dye	NA	NA
	Bright Dyes FLT Yellow/Green Tablet	Water Line & Drain Tracing Dye	NA	NA
SWWS Facility <sup>a</sup>	Clarifloc C-6265	Polymer Flocculation Agent	NA	NA
	Dog Food	Food Source for Microorganisms	NA	NA
	Glycerin	Carbon Source for Microorganisms	NA	NA
	Sodium Bisulfite	Dechlorination	sodium bisulfite	2C-4
	Soda Ash	Add Alkalinity	NA	NA
	Sodium Chloride	Chlorine Source for Disinfection Using the MIOX System	Chlorine	2C-4
	Sulfur Dioxide	Dechlorination	NA	NA
	Bright Dyes FLT Yellow/Green Liquid	Water Line & Drain Tracing Dye	NA	NA
SERF	40%-Ferric Chloride	Promote Precipitation	Ferric Chloride	2C-4
	25%-Magnesium Chloride	Promote Precipitation	Magnesium Chloride	NA
	33%-Hydrochloric Acid	pH Adjustment	Hydrochloric Acid	2C-4
	35%-Sodium Hypochlorite	Clean/Disinfect RO Units	Sodium Hypochlorite	2C-4
	25%-Sodium Hydroxide	pH Adjustment	Sodium Hydroxide	2C-4
	38%-Sodium Bisulfite	Injected prior to the RO Unit as a de-chlorinating Agent.	Sodium Bisulfite	2C-4
	Perma Treat PC-510T	RO Unit Antiscalant Polymer	Sodium Nitrite	2C-4
	Bright Dyes FLT Yellow/Green Liquid	Water Line & Drain Tracing Dye	NA	NA
	Bright Dyes FLT Yellow/Green Tablet	Water Line & Drain Tracing Dye	NA	NA
	SCC Cooling Towers <sup>b</sup>	Bromine Tablets	Biocide	Bromo-chloro-5,5-dimethyl hydantoin (chlorine source)
HACH 203832		Sulfuric Acid Solution 19.2 N	Sulfuric Acid	2C-4
HACH 1407028		Free Chlorine Reagent	Sodium Phosphate Dibasic	2C-4
			EDTA	2C-4
HACH 2076053		Molybdovanadate Reagent	Sulfuric Acid	2C-4
HACH 2105669		Total Chlorine Reagent	Sodium Phosphate Dibasic	2C-4
HACH 2263411		Total Chlorine Indicator	Sulfuric Acid	2C-4
HACH 2263511		Total Chlorine Buffer Solution	Sodium Hydroxide	2C-4
	EDTA		2C-4	

Source	Chemical Name	Reason for Use	Toxic Pollutant and/or Hazardous Substances Table 2C-3 or 2C-4	
	HACH 2297255	Compound for Free and Total Chlorine Analyzers	NA	NA
	HACH 2314011	Free Chlorine Indicator Solution for CL-17 Analyzer	Toluene	2C-4
	HACH 2314111	Free Chlorine Buffer for CL-117 Analyzer	NA	NA
	HACH 2756549	pH Storage Solution	Sodium Phosphate Dibasic	2C-4
	WEST C-358 <del>AP</del>	Corrosion Inhibitor and Antiscalant	<del>Potassium Hydroxide</del> Sodium Hydroxide	2C-4
	<del>WEST C-825</del>	<del>pH control (neutralization)</del>	<del>Sodium Bisulfite</del>	<del>2C-4</del>
	WEST R-630	De-Chlorination	Sodium Metabisulfite <del>Bisulfite</del>	2C-4
	Bright Dyes FLT Yellow/Green Liquid	Water Line & Drain Tracing Dye	NA	NA
	Bright Dyes FLT Yellow/Green Tablet	Water Line & Drain Tracing Dye	NA	NA

- See the permit application section provided for Outfall 13S for the Safety Data Sheets associated with SWWS.
- See the permit application section provided for Outfall 03A027 for the Safety Data Sheets associated with the SCC Cooling Towers.

EDTA = Ethylene Diamine Tetraacetic Acid; MIOX = mixed oxidation; RO = reverse osmosis; SCC = Strategic Computing Complex; SERF = Sanitary Effluent Reclamation Facility; SWWS = Sanitary Wastewater System

### 2.3 Discharge Rate and Frequency [II.C]

The discharge rates and frequencies for Outfall 001 and its sources are provided in Table 4.

Source <sup>a</sup>	Frequency		Flow Rates and Volumes				
	Days/Week	Months	Average (MGD)	Maximum (MGD)	Average Volume (GPD)	Maximum Volume (GPD)	Duration (days)
Power Plant	7	12	0.050	0.195	49,652	194,524	365
SWWS Facility <sup>b, c</sup>	7	12	0.026	0.209	26,432	209,173	365
SERF	7	12	0.040	0.122	39,807	121,914	365
SCC Cooling Towers <sup>d, e</sup>	7	12	0.051	0.105	50,679	104,804	365
Total Outfall 001	7	12	0.154	0.333	153,931	332,600	365

- Calculated between October 2017 and September 2018.
- The average volume of SWWS effluent discharged to Outfall 001 is significantly less on average due to reuse at the SCC after being treated at SERF.
- See the permit section provided for Outfall 13S for a schematic.
- Cooling tower blowdown calculated for the operation of 10 cooling towers.
- See the permit section provided for Outfall 03A027 for a schematic.

GPD = gallons per day; MGD = million gallons per day; SCC = Strategic Computing Complex; SERF = Sanitary Effluent Reclamation Facility; SWWS = Sanitary Wastewater System

### 3.0 PRODUCTION [Section III]

Section III is not applicable to Outfall 001.

<b>Table 6</b>			
<b>Potential Pollutants by Source for Outfall 001</b>			
<b>Source Description</b>	<b>POTENTIAL Toxic Pollutant and/or Hazardous Substances Table 2C-3 or 2C-4</b>		<b>Analytical Data Results from Outfall 001 <sup>a</sup></b>
Power Plant	Sodium Bisulfite	2C-4	Sulfite = 1 mg/L
SWWS Facility Treatment Chemicals	Chlorine	2C-4	Residual Chlorine = 0
	Sodium Bisulfite	2C-4	Sulfite = 1 mg/L
SWWS Chemicals identified on Influent Waste Stream Profile Forms	Acetic Acid	2C-4	pH = 7 to 8.5 S.U.
	Acetone	2C-4	Not Analyzed <sup>c</sup>
	Ammonia	2C-4	0.207 mg/L
	Aniline	2C-3 & 2C-4	Not Analyzed <sup>c</sup>
	Benzene	2C-4	1.81 ug/L
	Benzoic Acid	2C-4	pH = 7 to 8.5 S.U.
	Calcium Hypochlorite	2C-4	Chloride = 45.5 mg/L
	Carbon Disulfide	2C-3 & 2C-4	Not Analyzed <sup>c</sup>
	Chlorine	2C-4	Residual chlorine = 0
	Chloroform	2C-4	0.82 ug/L
	Cresol	2C-3 & 2C-4	Not Analyzed <sup>c</sup>
	Ethylbenzene	2C-4	Not Detected (VOC)
	Polychlorinated Biphenyls <sup>b</sup>	2C-4	Not Detected
	Phenol	2C-4	Not Detected (SVOC)
	Phosphoric Acid	2C-4	pH = 7 to 8.5 S.U. Total Phosphorus = 1.83 mg/L
	Potassium Hydroxide	2C-4	pH = 7 to 8.5 S.U.
	Sodium	2C-4	Not Analyzed <sup>c</sup>
	Sodium Bisulfite	2C-4	Sulfite = 1 mg/L
	Sodium Hydroxide	2C-4	pH = 7 to 8.5 S.U.
	Sodium Hypochlorite	2C-4	Chloride = 45.5 mg/L
	Sodium Nitrite	2C-4	Nitrate/nitrite = 1.69 mg/L
	Strontium	2C-3	Not Analyzed <sup>c</sup>
	Styrene	2C-3 & 2C-4	Not Analyzed <sup>c</sup>
Toluene	2C-4	Not Detected (VOC)	
Uranium	2C-3	Not Analyzed <sup>c</sup>	
Vanadium	2C-3	Not Analyzed <sup>c</sup>	
SERF Treatment Chemicals	Ferric Chloride	2C-4	Chloride = 45.5 mg/L Iron = 37.9 mg/L
	Hydrochloric Acid	2C-4	pH = 7 to 8.5 S.U.
	Magnesium Chloride	2C-4	Magnesium = 2,930 mg/L Chloride = 45.5 mg/L
	Sodium Bisulfite	2C-4	Sulfite = 1 mg/L
	Sodium Hydroxide	2C-4	pH = 7 to 8.5 S.U.
	Sodium Hypochlorite	2C-4	Chloride = 45.5 mg/L
	Sodium Nitrite	2C-4	Nitrate/Nitrite = 1.69 mg/L
SCC Cooling Towers Treatment Chemicals	EDTA	2C-4	pH = 7 to 8.5 S.U.
	Potassium Hydroxide	2C-4	pH = 7 to 8.5 S.U.
	Sodium Bisulfite/Metabisulfite	2C-4	Sulfite = 1 mg/L
	Sodium Hydroxide	2C-4	pH = 7 to 8.5 S.U.
	Sodium Phosphate Dibasic	2C-4	Total Phosphorus = 1.83 mg/L
	Sulfuric Acid	2C-4	pH = 7 to 8.5 S.U.
	Toluene	2C-4	Not Detected (VOC)
	Chlorine	2C-4	Total Residual Chlorine = 0

a. Results are from the representative sample collected at Outfall 001 on August 21, 2018 – August 23, 2019.

OUTFALL No.	TA - Bldg.	Year	Monitoring Period	Parameter	Quantity or Loading			Quality or Concentration								
					Average	Maximum	Units	Minimum	Average	Maximum	Units	Permit Limit	Units	Number of Samples	Frequency	Notes
001	TA3-22	2016	Dec	Total Suspended Solids	2.59	2.59	lbs/day	****	1.26	1.26	mg/L	30 Monthly Ave 100 Daily Max	mg/L	1	Monthly	Required by Permit
001	TA3-22	2017	Jan	Total Suspended Solids	4.185	4.185	lbs/day	****	2	2	mg/L	30 Monthly Ave 100 Daily Max	mg/L	1	Monthly	Required by Permit
001	TA3-22	2017	Feb	Total Suspended Solids	3.66	3.66	lbs/day	****	2	2	mg/L	30 Monthly Ave 100 Daily Max	mg/L	1	Monthly	Required by Permit
001	TA3-22	2017	Mar	Total Suspended Solids	4.698	4.698	lbs/day	****	2.4	2.4	mg/L	30 Monthly Ave 100 Daily Max	mg/L	1	Monthly	Required by Permit
001	TA3-22	2017	Apr	Total Suspended Solids	6.613	6.613	lbs/day	****	5.9	5.9	mg/L	30 Monthly Ave 100 Daily Max	mg/L	1	Monthly	Required by Permit
001	TA3-22	2017	May	Total Suspended Solids	1.4	1.4	lbs/day	****	0.9	0.9	mg/L	30 Monthly Ave 100 Daily Max	mg/L	1	Monthly	Required by Permit
001	TA3-22	2017	Jun	Total Suspended Solids	1.47	1.47	lbs/day	****	1.2	1.2	mg/L	30 Monthly Ave 100 Daily Max	mg/L	1	Monthly	Required by Permit
001	TA3-22	2017	Jul	Total Suspended Solids	0.146	0.146	lbs/day	****	1.5	1.5	mg/L	30 Monthly Ave 100 Daily Max	mg/L	1	Monthly	Required by Permit
001	TA3-22	2017	Aug	Total Suspended Solids	2.85	2.85	lbs/day	****	1.7	1.7	mg/L	30 Monthly Ave 100 Daily Max	mg/L	1	Monthly	Required by Permit
001	TA3-22	2017	Sept	Total Suspended Solids	0.898	0.898	lbs/day	****	1.2	1.2	mg/L	30 Monthly Ave 100 Daily Max	mg/L	1	Monthly	Required by Permit
001	TA3-22	2017	Oct	Total Suspended Solids	1.169	1.169	lbs/day	****	0.753	0.753	mg/L	30 Monthly Ave 100 Daily Max	mg/L	1	Monthly	Required by Permit
001	TA3-22	2017	Nov	Total Suspended Solids	2.03	2.03	lbs/day	****	1.4	1.4	mg/L	30 Monthly Ave 100 Daily Max	mg/L	1	Monthly	Required by Permit
001	TA3-22	2017	Dec	Total Suspended Solids	1.087	1.087	lbs/day	****	0.7	0.7	mg/L	30 Monthly Ave 100 Daily Max	mg/L	1	Monthly	Required by Permit
001	TA3-22	2018	Jan	Total Suspended Solids	0.756	0.756	lbs/day	****	0.8	0.8	mg/L	30 Monthly Ave 100 Daily Max	mg/L	1	Monthly	Required by Permit
001	TA3-22	2018	Feb	Total Suspended Solids	2.29	2.29	lbs/day	****	1.5	1.5	mg/L	30 Monthly Ave 100 Daily Max	mg/L	1	Monthly	Required by Permit
001	TA3-22	2018	Mar	Total Suspended Solids	<0.708	<0.708	lbs/day	****	<0.57	<0.57	mg/L	30 Monthly Ave 100 Daily Max	mg/L	1	Monthly	Required by Permit
001	TA3-22	2018	Apr	Total Suspended Solids	<0.632	<0.632	lbs/day	****	<0.57	<0.57	mg/L	30 Monthly Ave 100 Daily Max	mg/L	1	Monthly	Required by Permit
001	TA3-22	2018	May	Total Suspended Solids	<0.632	<0.632	lbs/day	****	<0.57	<0.57	mg/L	30 Monthly Ave 100 Daily Max	mg/L	1	Monthly	Required by Permit
001	TA3-22	2018	Jun	Total Suspended Solids	2.3	2.3	lbs/day	****	1.3	1.3	mg/L	30 Monthly Ave 100 Daily Max	mg/L	1	Monthly	Required by Permit
001	TA3-22	2018	Jul	Total Suspended Solids	2.05	2.05	lbs/day	****	2.42	2.42	mg/L	30 Monthly Ave 100 Daily Max	mg/L	1	Monthly	Required by Permit
001	TA3-22	2018	Aug	Total Suspended Solids	0.801	1.05	lbs/day	****	1	1.2	mg/L	30 Monthly Ave 100 Daily Max	mg/L	2	Monthly	Required by Permit
001	TA3-22	2018	Sept	Total Suspended Solids	8.63	8.63	lbs/day	****	3.4	3.4	mg/L	30 Monthly Ave 100 Daily Max	mg/L	1	Monthly	Required by Permit
<b>Total Suspended Solids</b>					<b>Daily Average</b>				<b>1.99</b>		<b>mg/L</b>		<b>mg/L</b>	<b>49</b>		
<b>Total Suspended Solids</b>					<b>Maximum 30 Day Average</b>				<b>7.2</b>		<b>mg/L</b>		<b>mg/L</b>	<b>49</b>		
<b>Total Suspended Solids</b>					<b>Maximum</b>					<b>7.2</b>	<b>mg/L</b>		<b>mg/L</b>	<b>49</b>		
001	TA3-22	2015	Sept	Aluminum, Total				****	****	<0.015	mg/L	0.9889	mg/L	1	Yearly	Required by Permit
001	TA3-22	2016	Sept	Aluminum, Total				****	****	0.02440	mg/L	0.9889	mg/L	1	Yearly	Required by Permit
001	TA3-22	2017	Sept	Aluminum, Total				****	****	<0.0193	mg/L	0.9889	mg/L	3	Yearly	Required by Permit
001	TA3-22	2018	Sept	Aluminum, Total				****	****	<0.0193	mg/L	0.9889	mg/L	4	Yearly	Required by Permit
<b>Aluminum, Total</b>					<b>Daily Average</b>				<b>0.0244</b>		<b>mg/L</b>					
<b>Aluminum, Total</b>					<b>Maximum 30 Day Average</b>				<b>0.02440</b>		<b>mg/L</b>					
<b>Aluminum, Total</b>					<b>Maximum</b>					<b>0.0244</b>	<b>mg/L</b>			<b>9</b>		
001	TA3-22	2015	Sept	Copper, Dissolved				****	****	0.00120	mg/L	0.0073	mg/L	1	Yearly	Required by Permit
001	TA3-22	2016	Sept	Copper, Dissolved				****	****	0.00174	mg/L	0.0073	mg/L	1	Yearly	Required by Permit
001	TA3-22	2017	Sept	Copper, Dissolved				****	****	0.00579	mg/L	0.0073	mg/L	6	Yearly	Required by Permit
001	TA3-22	2018	Sept	Copper, Dissolved				****	****	0.00622	mg/L	0.0073	mg/L	2	Yearly	Required by Permit
<b>Copper, Dissolved</b>					<b>Daily Average</b>						<b>mg/L</b>					
<b>Copper, Dissolved</b>					<b>Maximum 30 Day Average</b>						<b>mg/L</b>					
<b>Copper, Dissolved</b>					<b>Maximum</b>					<b>0.00622</b>	<b>mg/L</b>			<b>10</b>		
001	TA3-22	2015	Sept	PCB <sup>a</sup>				****	0.00257	0.00257	ug/L	0.00064 Monthly Ave & Daily Max	ug/L	1	Yearly	Required by Permit

OUTFALL No.	TA - Bldg.	Year	Monitoring Period	Parameter	Quantity or Loading			Quality or Concentration									
					Average	Maximum	Units	Minimum	Average	Maximum	Units	Permit Limit	Units	Number of Samples	Frequency	Notes	
001	TA3-22	2016	Sept	PCB, Total <sup>a</sup>				****	0.00158	0.0019	ug/L	0.00064 Monthly Ave & Daily Max	ug/L	2	Yearly	Required by Permit	
001	TA3-22	2017	Sept	PCB, Total <sup>a</sup>				****	0	0	ug/L	0.00064 Monthly Ave & Daily Max	ug/L	1	Yearly	Required by Permit	
001	TA3-22	2018	Sept	PCB, Total <sup>a</sup>				****	0.009	0.013	ug/L	0.00064 Monthly Ave & Daily Max	ug/L	2	Yearly	Required by Permit	
a. Results were obtained using the EPA published Congener Method 1668 Revision and detection limits. The method and detection limits allow for lower concentrations to be detected than the Aroclor method required for the analytical results provided in the Form 2C.																	
				PCB, Total	Daily Average				0.0033		mg/L						
				PCB, Total	Maximum 30 Day Average					0.0044	mg/L						
				PCB, Total	Maximum					0.0130	mg/L			6			
1	TA3-22	2016	Sept	Adjusted Gross Alpha				****	1.36	1.36	pCi/L	NA	pCi/L	1	Term	Required by Permit	
				Adjusted Gross Alpha	Daily Average						pCi/L						
				Adjusted Gross Alpha	Maximum 30 Day Average						pCi/L						
				Adjusted Gross Alpha	Maximum					1.36	pCi/L			1			

# SODIUM HYDROXIDE



UNIVAR USA INC.  
ISSUE DATE:2015-04-29  
Annotation:

Distributed By:



2 Madison Ave. Larchmont, NY 10538  
Ph: 914-834-1881 Fax: 914-834-4611

MSDS NO:10000088  
VERSION:001 2015-04-29



Univar  
3075 Highland Pkwy STE 200  
Downers Grove, IL 60515  
425-889-3400

## SAFETY DATA SHEET

### 1. Identification

**Product identifier:** CAUSTIC SODA 50%

#### Other means of identification

**Synonyms:** Sodium Hydroxide

**SDS number:** 000100000088

#### Recommended use and restriction on use

**Recommended use:** Not available.

**Restrictions on use:** Not known.

**Emergency telephone number:**For emergency assistance Involving chemicals

call CHEMTREC day or night at: 1-800-424-9300. CHEMTREC INTERNATIONAL Tel# 703-527-3887

### 2. Hazard(s) identification

#### Hazard classification

##### Health hazards

Acute toxicity (Oral) Category 4

Skin corrosion/irritation Category 1A

Serious eye damage/eye irritation Category 1

**Environmental hazards**Acute hazards Category 3  
to the aquatic environment

#### Label elements

**Hazard symbol**



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<b>Signal word</b>	Danger
<b>Hazard statement</b>	Corrosive. Harmful if swallowed. Causes severe skin burns and eye damage.
<b>Precautionary statement</b>	
<b>Prevention</b>	Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Do not breathe dust or mists. Wear protective gloves/protective clothing/eye protection/face protection.
<b>Response</b>	IF INHALED: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. IF SWALLOWED: Call a POISON CENTER/doctor/ if you feel unwell. Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER/doctor. Specific treatment (see this label). Wash contaminated clothing before reuse.
<b>Storage</b>	Store in a closed container. Keep container tightly closed. Store in a well-ventilated place. Store in a dry place. Store locked up.
<b>Disposal</b>	Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.
<b>Other hazards which do not result in GHS classification</b>	None.

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**3. Composition/information on ingredients**

**Substances**

Chemical identity	Common name and synonyms	CAS number	Content in percent (%)*
Sodium hydroxide		1310-73-2	>=48 - <=52%
Water		7732-18-5	>=48 - <=52%
Sodium Chloride		7647-14-5	>=0 - <=5%

\* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

**4. First-aid measures**

**General information:** CAUTION! First aid personnel must be aware of own risk during rescue!  
**Ingestion:** Do NOT induce vomiting. Never give liquid to an unconscious person. Get medical attention immediately.  
**Inhalation:** Move to fresh air. If breathing is difficult, give oxygen. Perform artificial respiration if breathing has stopped. Get medical attention immediately.  
**Skin contact:** Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.  
**Eye contact:** If in eyes, hold eyes open, flood with water for at least 15 minutes and see a doctor.  
**Most important symptoms/effects, acute and delayed**  
**Symptoms:** No data available.

**Indication of immediate medical attention and special treatment needed**

**Treatment:** No data available.

**5. Fire-fighting measures**

**General fire hazards:** No data available.  
**Suitable (and unsuitable) extinguishing media**  
**Suitable extinguishing media:** Use: Powder. In case of fire in the surroundings: all extinguishing agents allowed.  
**Unsuitable extinguishing media:** No data available.

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**Specific hazards arising from the chemical:** No data available.  
**Special protective equipment and precautions for firefighters**  
**Special fire fighting procedures:** No data available.  
**Special protective equipment for fire-fighters:** No data available.

**6. Accidental release measures**

**Personal precautions, protective equipment and emergency procedures:** Use personal protective equipment. Keep unauthorized personnel away.  
**Methods and material for containment and cleaning up:** Absorb spillage with non-combustible, absorbent material. Dike for later disposal.

**7. Handling and storage**

**Precautions for safe handling:** Use personal protective equipment as required. Use only with adequate ventilation. Container must be kept tightly closed.  
**Conditions for safe storage, including any incompatibilities:** No data available.

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**8. Exposure controls/personal protection**

**Control parameters**

**Occupational exposure limits**

Chemical identity	Type	Exposure Limit values	Source
Sodium hydroxide	Ceiling	2 mg/m <sup>3</sup>	US. ACGIH Threshold Limit Values (03 2013)
	Ceil_Tim e	2 mg/m <sup>3</sup>	US. NIOSH: Pocket Guide to Chemical Hazards (2010)
	PEL	2 mg/m <sup>3</sup>	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
	Ceiling	2 mg/m <sup>3</sup>	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)
	Ceiling	2 mg/m <sup>3</sup>	US. Tennessee. OELs. Occupational Exposure Limits, Table Z1A (06 2008)
Sodium hydroxide - Particulate.	ST ESL	20 µg/m <sup>3</sup>	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (02 2013)
	AN ESL	2 µg/m <sup>3</sup>	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (02 2013)
Sodium hydroxide	Ceiling	2 mg/m <sup>3</sup>	US. California Code of Regulations, Title 8, Section 5155. Airborne Contaminants (02 2012)

**Appropriate engineering controls** No data available.

**Individual protection measures, such as personal protective equipment**

**General information:**

Use personal protective equipment as required. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing to remove contaminants. Discard contaminated footwear that cannot be cleaned. Practice good housekeeping.

**Eye/face protection:**

Use personal protective equipment as required. Wear goggles/face shield.

**Skin protection**

**Hand protection:**

No data available.

**Other:**

No data available.



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**Respiratory protection:** No data available.  
**Hygiene measures:** No data available.

<b>9. Physical and chemical properties</b>
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<b>Physical state:</b>	Liquid
<b>Form:</b>	No data available.
<b>Color:</b>	No data available.
<b>Odor:</b>	No data available.
<b>Odor threshold:</b>	No data available.
<b>pH:</b>	14
<b>Melting point/freezing point:</b>	-12 - 10 °C
<b>Initial boiling point and boiling range:</b>	105 - 140 °C
<b>Flash Point:</b>	No data available.
<b>Evaporation rate:</b>	No data available.
<b>Flammability (solid, gas):</b>	No data available.
<b>Upper/lower limit on flammability or explosive limits</b>	
<b>Flammability limit - upper (%):</b>	No data available.
<b>Flammability limit - lower (%):</b>	No data available.
<b>Explosive limit - upper (%):</b>	No data available.
<b>Explosive limit - lower (%):</b>	No data available.
<b>Vapor pressure:</b>	No data available.
<b>Vapor density:</b>	No data available.
<b>Relative density:</b>	No data available.
<b>Solubility(ies)</b>	
<b>Solubility in water:</b>	No data available.
<b>Solubility (other):</b>	No data available.
<b>Partition coefficient (n-octanol/water):</b>	No data available.
<b>Auto-ignition temperature:</b>	No data available.
<b>Decomposition temperature:</b>	No data available.
<b>Viscosity:</b>	No data available.



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**10. Stability and reactivity**

**Reactivity:** No data available.  
**Chemical stability:** No data available.  
**Possibility of hazardous reactions:** No data available.  
**Conditions to avoid:** No data available.  
**Incompatible materials:** No data available.  
**Hazardous decomposition products:** No data available.

**11. Toxicological information**

**Symptoms related to the physical, chemical and toxicological characteristics**

**Ingestion:** No data available.  
**Inhalation:** No data available.  
**Skin contact:** No data available.  
**Eye contact:** No data available.

**Information on toxicological effects**

**Acute toxicity (list all possible routes of exposure)**

**Oral**

**Product:** ATEmix ( ): 353.488372 mg/kg

**Dermal**

**Product:**

Not classified for acute toxicity based on available data.

**Inhalation**

**Product:** No data available.

**Specified substance(s):**

Sodium Chloride LC 50 (Rat, ): > 42 mg/l 2 (reliable with restrictions)

**Repeated dose toxicity**

**Product:** No data available.

**Skin corrosion/irritation**

**Product:** No data available.

**Serious eye damage/eye irritation**

**Product:** No data available.

**Respiratory or skin sensitization**

**Product:** No data available.

**Carcinogenicity**

**Product:** No data available.

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**IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:**  
No carcinogenic components identified

**US. National Toxicology Program (NTP) Report on Carcinogens:**  
No carcinogenic components identified

**US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050):**  
No carcinogenic components identified

**Germ cell mutagenicity**

**In vitro**

**Product:** No data available.

**In vivo**

**Product:** No data available.

**Reproductive toxicity**

**Product:** No data available.

**Specific target organ toxicity - single exposure**

**Product:** No data available.

**Specific target organ toxicity - repeated exposure**

**Product:** No data available.

**Aspiration hazard**

**Product:** No data available.

**Other effects:** No data available.

**12. Ecological information**

**Ecotoxicity:**

**Acute hazards to the aquatic environment:**

**Fish**

**Product:** No data available.

**Specified substance(s):**

Sodium hydroxide LC 50 (Western mosquitofish (*Gambusia affinis*), 24 h): 125 mg/l Mortality  
LC 50 (Guppy (*Poecilia reticulata*), 24 h): 145 mg/l Mortality LC 50 (Goldfish  
(*Carassius auratus*), 24 h): 160 mg/l Mortality LC 50 (Bony fish superclass  
(*Osteichthyes*), 48 h): 33 - 100 mg/l Mortality LC 50 (Western mosquitofish  
(*Gambusia affinis*), 48 h): 125 mg/l Mortality

**Aquatic invertebrates**

**Product:** No data available.

**Specified substance(s):**

Sodium hydroxide EC 50 (Water flea (*Ceriodaphnia dubia*), 48 h): 34.59 - 47.13 mg/l  
Intoxication LC 50 (Common shrimp, sand shrimp (*Crangon crangon*), 48 h):  
33 - 100 mg/l Mortality LC 50 (Cockle (*Cerastoderma edule*), 48 h): 330 -

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1,000 mg/l Mortality

**Chronic hazards to the aquatic environment:**

**Fish**  
**Product:** No data available.

**Aquatic invertebrates**  
**Product:** No data available.

**Toxicity to Aquatic Plants**  
**Product:** No data available.

**Persistence and degradability**

**Biodegradation**  
**Product:** No data available.

**BOD/COD ratio**  
**Product:** No data available.

**Bioaccumulative potential**

**Bioconcentration factor (BCF)**  
**Product:** No data available.

**Partition coefficient n-octanol / water (log Kow)**  
**Product:** No data available.

**Mobility in soil:** No data available.

**Known or predicted distribution to environmental compartments**

Sodium hydroxide No data available.  
 Water No data available.  
 Sodium chloride No data available.

**Known or predicted distribution to environmental compartments**

Water No data available.

**13. Disposal considerations**

**Disposal instructions:** No data available.  
**Contaminated packaging:** No data available.

**14. Transport information**

**DOT**

UN number: UN 1824  
 UN proper shipping name: Sodium hydroxide solution  
 Transport hazard class(es)  
   Class: 8  
   Label(s): 8  
 Packing group: II  
 Marine Pollutant: Not regulated.

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Special precautions for user: —

**IMDG**

UN number: UN 1824  
 UN proper shipping name: SODIUM HYDROXIDE SOLUTION  
 Transport hazard class(es)  
 Class: 8  
 Label(s): 8  
 EmS No.: F-A, S-B  
 Packing group: II  
 Marine Pollutant: Not regulated.  
 Special precautions for user: —

**IATA**

UN number: UN 1824  
 Proper Shipping Name: Sodium hydroxide solution  
 Transport hazard class(es):  
 Class: 8  
 Label(s): 8  
 Packing group: II  
 Environmental hazards: Not regulated.  
 Special precautions for user: —

Other information  
 Passenger and cargo aircraft: Allowed.  
 Cargo aircraft only: Allowed.

**15. Regulatory information**

**US federal regulations**US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)  
 None present or none present in regulated quantities.  
**CERCLA Hazardous Substance List (40 CFR 302.4):**  
 Sodium hydroxide Reportable quantity: 1000 lbs.  
**Superfund amendments and reauthorization act of 1986 (SARA)**  
**Hazard categories**  
 Not listed.

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**SARA 302 Extremely hazardous substance**

None present or none present in regulated quantities.

**SARA 304 Emergency release notification**

<b>Chemical identity</b>	<b>RQ</b>
Sodium hydroxide	1000 lbs.

**SARA 311/312 Hazardous chemical**

<b>Chemical identity</b>	<b>Threshold Planning Quantity</b>
Sodium hydroxide	500 lbs
Sodium Chloride	500 lbs

**SARA 313 (TRI reporting)**

None present or none present in regulated quantities.

**Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3)**

Sodium hydroxide Reportable quantity: 1000 lbs.

**Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):**

None present or none present in regulated quantities.

**US state regulations**

**US. California Proposition 65**

No ingredient regulated by CA Prop 65 present.

**US. New Jersey Worker and Community Right-to-Know Act**

Sodium hydroxide Listed

**US. Massachusetts RTK - Substance List**

Sodium hydroxide Listed

**US. Pennsylvania RTK - Hazardous Substances**

Sodium hydroxide Listed

**US. Rhode Island RTK**

Sodium hydroxide Listed



UNIVAR USA INC.  
 ISSUE DATE:2015-04-29  
 Annotation:

MSDS NO:10000088  
 VERSION:001 2015-04-29

Version: 1.2  
 Revision date: 04/29/2015



<b>Inventory Status:</b> Australia AICS:	Not in compliance with the inventory.
Canada DSL Inventory List:	Not in compliance with the inventory.
EU EINECS List:	Not in compliance with the inventory.
EU ELINCS List:	Not in compliance with the inventory.
Japan (ENCS) List:	Not in compliance with the inventory.
EU No Longer Polymers List:	Not in compliance with the inventory.
China Inv. Existing Chemical Substances:	Not in compliance with the inventory.
Korea Existing Chemicals Inv. (KECI):	Not in compliance with the inventory.
Canada NDSL Inventory:	Not in compliance with the inventory.
Philippines PICCS:	Not in compliance with the inventory.
US TSCA Inventory:	On or in compliance with the inventory.
New Zealand Inventory of Chemicals:	Not in compliance with the inventory.
Japan ISHL Listing:	Not in compliance with the inventory.
Japan Pharmacopoeia Listing:	Not in compliance with the inventory.

**16. Other information, including date of preparation or last revision**

**HMIS Hazard ID**

Health	*	3
Flammability		0
Physical hazards		1
<b>PERSONAL PROTECTION</b>		<b>B</b>

B - Safety Glasses & Gloves

Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe; \*Chronic health effect

**NFPA Hazard ID**

	Flammability
	Health
	Reactivity
	Special hazard.

Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe

**Issue date:** 04/29/2015  
**Revision date:** No data available.  
**Version #:** 1.2  
**Further information:** No data available.



# Industrial and Sanitary Outfalls

## 2019 NPDES Permit Re-Application

### Outfall 03A027 Fact Sheet

Utilities and Infrastructure (U&I)  
Strategic Computing Complex (SCC) Cooling Towers



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- 5 Potential Future Flow Rates and Frequencies for Outfall 03A027
- 6 Potential Pollutants by Source for Outfall 03A027
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## Revision Log

<u>Revision No.</u>	<u>Date</u>	<u>Page Nos.</u>	<u>Change Description</u>
<u>0</u>	<u>3/21/2019</u>	<u>NA</u>	<u>Original</u>
<u>1</u>	<u>7/31/2019</u>	<u>Page 6 of 10, Table 3</u>	<u>Revised to remove the chemical concentration percentages. Updated the chemical information for C358 and R-630 for the SCC Cooling Towers. Deleted WEST C-825 because the chemical is no longer in use.</u>
		<u>Page 8 of 10, Table 5</u>	<u>Correct the flow rates in Table 5 to be consistent with the fact sheet for Outfall 001. Review of the calculation verified that the fact sheet for Outfall 001 was correct.</u>
		<u>Page 8 of 10, Table 6</u>	<u>Updated the potential chemicals associated with the SCC Cooling Towers to match Table 3.</u>
		<u>Attachment C, page C8</u>	<u>Deleted Photograph NPDES 03A027-18-013, which shows the pH adjustment Chemical Feed Tank that is no longer in use.</u>
		<u>Attachment D, page D6 and D7</u>	<u>Revised Copper to "Copper, Dissolved" to be consistent with the wording used in the existing permit.</u>
		<u>Attachment D, page D7</u>	<u>Revised the summary line for Aluminum to "Aluminum, Total" to be consistent with the wording used in the existing permit.</u>
		<u>Attachment D, page D7</u>	<u>Revised Gross Alpha to "Adjusted Gross Alpha"</u>
		<u>Attachment E, page 178</u>	<u>Replaced the MSDS for WEST C-358P Inhibitor with the current SDS.</u>
		<u>Attachment E, page 183</u>	<u>Deleted the MSDS for C-825 because the chemical is no longer used.</u>
		<u>Attachment E, page 189</u>	<u>Replaced the MSDS for WEST R-630 with the current SDS.</u>
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

Source	Treatment Code	Description	Justification
SCC Cooling Towers	2-E	Dechlorination	Chlorine Scavenger Chemicals are Added
	2-H	Disinfection (other)	Chemicals are added to Control Microorganisms
	2-L	Reduction	Chemicals that are Antiscalant and Corrosion Inhibitors are Added

SCC = Strategic Computing Complex;

The water treatment processes identified in Table 2 utilize chemicals to monitor the water quality in the cooling tower, control corrosion, limit biological growth, and de-chlorinate blowdown prior to discharge. Table 3 provides a list of the chemicals used to treat the water.

Source	Chemical Name	Reason for Use	Toxic Pollutant and/or Hazardous Substances Table 2C-3 or 2C-4	
SCC Cooling Towers	Bromine Tablets	Biocide	Bromo-chloro-5,5-dimethyl hydantoin (chlorine source)	2C-4
	HACH 203832	Sulfuric Acid Solution 19.2N	Sulfuric Acid	2C-4
	HACH 1407028	Free Chlorine Reagent	Sodium Phosphate Dibasic	2C-4
			EDTA	2C-4
	HACH 2076053	Molybdovanadate Reagent	Sulfuric Acid	2C-4
	HACH 2105669	Total Chlorine Reagent	Sodium Phosphate Dibasic	2C-4
	HACH 2263411	Total Chlorine Indicator	Sulfuric Acid	2C-4
	HACH 2263511	Total Chlorine Buffer Solution	Sodium Hydroxide	2C-4
			EDTA	2C-4
	HACH 2297255	Compound for Free and Total Chlorine Analyzers	NA	NA
	HACH 2314011	Free Chlorine Indicator Solution for CL-17 Analyzer	Toluene	2C-4
	HACH 2314111	Free Chlorine Buffer for CL-117 Analyzer	NA	NA
	HACH 2756549	pH Storage Solution	Sodium Phosphate Dibasic	2C-4
	C-358 <sup>AP</sup>	Corrosion Inhibitor & Antiscalant	<del>Potassium Hydroxide</del> <del>Sodium Hydroxide</del>	2C-4
	<del>WEST C-825</del>	<del>pH control (neutralization)</del>	<del>Sodium Bisulfite</del>	<del>2C-4</del>
	R-630	Dechlorination	Sodium <del>Metabisulfite</del> <del>Bisulfite</del>	2C-4
Bright Dyes FLT Yellow/Green Liquid	Water Line & Drain Tracing Dye	NA	NA	
Bright Dyes FLT Yellow/Green Tablet	Water Line & Drain Tracing Dye	NA	NA	
SERF Treatment Chemicals <sup>a</sup>	<del>40%</del> -Ferric Chloride	Promote Precipitation	Ferric Chloride	2C-4
	<del>25%</del> -Magnesium Chloride	Promote Precipitation	Magnesium Chloride	NA
	<del>33%</del> -Hydrochloric Acid	pH Adjustment	Hydrochloric Acid	2C-4
	<del>35%</del> -Sodium Hypochlorite	Clean/Disinfect RO Units	Sodium Hypochlorite	2C-4
	<del>25%</del> -Sodium Hydroxide	pH Adjustment	Sodium Hydroxide	2C-4



Table 3 List of Treatment Chemicals used in the Operations that Contribute to Outfall 03A027				
Source	Chemical Name	Reason for Use	Toxic Pollutant and/or Hazardous Substances Table 2C-3 or 2C-4	
	<del>38%</del> Sodium Bisulfite	Injected prior to the RO Unit as a de-chlorinating Agent.	Sodium Bisulfite	2C-4
	Perma Treat PC-510T	RO Unit Antiscalant Polymer	Sodium Nitrite	2C-4
	Bright Dyes FLT Yellow/Green Liquid	Water Line & Drain Tracing Dye	NA	NA
	Bright Dyes FLT Yellow/Green Tablet	Water Line & Drain Tracing Dye	NA	NA
SWWS Treatment Chemicals <sup>b</sup>	Clarifloc C-6265	Polymer Flocculation Agent	NA	NA
	Dog Food	Food Source for Microorganisms	NA	NA
	Glycerin	Carbon Source for Microorganisms	NA	NA
	Sodium Bisulfite	Dechlorination	Sodium Bisulfite	2C-4
	Soda Ash [Na <sub>2</sub> CO <sub>3</sub> ]	Add Alkalinity	Sodium carbonate	NA
	Sodium Chloride	Chlorine Source for Disinfection Using the MIOX System	Chlorine	2C-4
	Sulfur Dioxide	Dechlorination	NA	NA
	Bright Dyes FLT Yellow/Green Liquid	Water Line & Drain Tracing Dye	NA	NA
Bright Dyes FLT Yellow/Green Tablet	Water Line & Drain Tracing Dye	NA	NA	
a. See the permit application section provided for Outfall 001 for the Safety Data Sheets associated with SERF. b. See the permit application section provided for Outfall 13S for the Safety Data Sheets associated with SWWS.  EDTA = Ethylene Diamine Tetraacetic Acid; MIOX = mixed oxide; NA = not applicable; RO = reverse osmosis; SCC = Strategic Computing Complex; SERF = Sanitary Effluent Reclamation Facility; SWWS = Sanitary Wastewater System				

The blowdown from the SCC Cooling Towers can be routed to discharge at Outfall 03A027; discharge at Outfall 001; the Reuse Tank at the Power Plant for recycle at SERF; or discharge to the SWWS treatment plant. The route of the blowdown is determined by demand, volume, and outfall/equipment availability. Attachment E provides the Safety Data Sheets (SDS) associated with the water treatment system at the SCC Cooling Towers. The permit application sections provided for Outfalls 001 and 13S provide the SDSs for SERF and the SWWS, respectively.

### 2.3 Discharge Rate and Frequency [II.C]

The discharge rates and frequencies for Outfall 03A027 are provided in Table 4.

Table 4 Flow Rates and Frequencies for Discharges to Outfall 03A027							
Source <sup>a, b</sup>	Frequency		Flow Rates and Volumes				
	Days/Week	Months	Average (MGD)	Maximum (MGD)	Average Volume (GPD)	Maximum Volume (GPD)	Duration (days)
SCC Cooling Towers (10 towers)	7	12	0.051	0.105	50,679	104,804	365

- a. Blowdown from the SCC Cooling Towers may be routed to Outfall 03A027, Outfall 001, or the SWWS as needed to allow for water recycling, construction, and/or maintenance activities.
- b. Calculated between October 2017 and September 2016.

GPD = gallons per day; MGD = million gallons per day; SCC = Strategic Computing Complex

### 3.0 PRODUCTION [Section III]

Section III is not applicable to Outfall 03A027.

### 4.0 IMPROVEMENTS [Section IV]

The SCC is currently adding 5 additional cooling towers to its cooling system. These towers will utilize the existing water treatment system and makeup water supply described in Section 2.3. A Notice of Change will be submitted for these future changes prior to their implementation and impact to the outfall. Table 5 provides an estimate for the future flow rates and frequencies of makeup water and blowdown when the new towers come online. Attachment B provides a proposed schematic and water balance for the future configuration.

Source	Frequency		Flow Rates and Volumes				
	Days/Week	Months	Average (MGD)	Maximum (MGD)	Average Volume (GPD)	Maximum Volume (GPD)	Duration (days)
SCC Cooling Towers (15 Towers)	7.0	12	0.07 <del>46</del>	0.201 <del>457</del>	74,436	201,056	365

GPD = gallons per day; MGD = million gallons per day; SCC = Strategic Computing Center

### 5.0 INTAKE AND EFFLUENT CHARACTERISTICS [Section V]

#### 5.1 Analytical Data [V.A, B, and C]

The analytical results provided for the Outfall 03A027 Permit Reapplication on the Form 2C were provided from the following sources:

- Samples collected on August 29, 2018 and shipped to an independent laboratory for analysis.
- Field samples collected and analyzed on August 29, 2018 for temperature, residual chlorine, and pH.
- Field samples collected and analyzed on February 4, 2019 for sulfite.
- Discharge monitoring report summary for Outfall 03A027 from October 2014 to September 2018 (Attachment D).
- Hardness = 26 mg/L (CaCO<sub>3</sub>)

#### 5.2 Potential Pollutants [V.D]

The treatment chemicals associated with the SCC Cooling Tower water treatment system, the use of potable water, and the reuse of SWWS effluent that has been conditioned at the SERF constitutes the pollutant load of the discharge to Outfall 03A027. Table 6 identifies the Table 2C-3 and 2C-4 pollutants by discharge source. It also identifies those pollutants (if any) that were detected in the analytical results from the samples collected for the 2019 Permit Renewal Application.

Source	POTENTIAL Toxic Pollutant and/or Hazardous Substances Table 2C-3 or 2C-4	Analytical Data Results from Operational Samples Collected for Outfall 03A027 <sup>a</sup>
SCC Cooling Tower Water Treatment Chemicals	EDTA	2C-4 pH = 7.4 – 9.1 S.U.
	<del>Potassium Hydroxide</del>	<del>2C-4</del> <del>pH = 7.4 – 9.1 S.U.</del>
	Sodium Bisulfite/ <del>Metabisulfite</del>	2C-4 Sulfite 6.0 mg/L
	Sodium Hydroxide	2C-4 pH = 7.4 – 9.1 S.U.
	Sodium Phosphate Dibasic	2C-4 Total Phosphorus = 3.55 mg/L
	Sulfuric Acid	2C-4 pH = 7.4 – 9.1 S.U.
	Toluene	2C-4 Not Detected (VOC)
	Chlorine	2C-4 Total Residual Chlorine = 0





**Photograph - NPDES-03A027-18-012  
SCC Trinity Cooling Towers - Brominators**

~~**Photograph - NPDES-03A027-18-013  
SCC Trinity Cooling Towers - pH Adjustment Chemical Feed Tank**~~

OUTFALL No.	TA - Bldg.	Year	Monitoring Period	Parameter	Quantity or Loading			Quality or Concentration									
					Average	Maximum	Units	Minimum	Average	Maximum	Units	Permit Limit	Units	Number of Samples	Frequently	Notes	
03A027	TA3-2327	2015	Mar	Total Suspended Solids				****	2.6	2.6	mg/L	30 Monthly, 100 Daily Max	mg/L	1	Quarterly	Permit Requirement	
03A027	TA3-2327	2015	Jun	Total Suspended Solids				****	2.3	2.3	mg/L	30 Monthly, 100 Daily Max	mg/L	1	Quarterly	Permit Requirement	
03A027	TA3-2327	2015	Sept	Total Suspended Solids				****	2	2	mg/L	30 Monthly, 100 Daily Max	mg/L	1	Quarterly	Permit Requirement	
03A027	TA3-2327	2015	Dec	Total Suspended Solids				****	1.3	1.3	mg/L	30 Monthly, 100 Daily Max	mg/L	1	Quarterly	Permit Requirement	
03A027	TA3-2327	2016	Mar	Total Suspended Solids				****	1.5	1.5	mg/L	30 Monthly, 100 Daily Max	mg/L	1	Quarterly	Permit Requirement	
03A027	TA3-2327	2016	Jun	Total Suspended Solids				****	2.2	2.2	mg/L	30 Monthly, 100 Daily Max	mg/L	1	Quarterly	Permit Requirement	
03A027	TA3-2327	2016	Sept	Total Suspended Solids				****	4.86	5.52	mg/L	30 Monthly, 100 Daily Max	mg/L	2	Quarterly	Permit Requirement	
03A027	TA3-2327	2016	Dec	Total Suspended Solids				****	****	****	mg/L	30 Monthly, 100 Daily Max	mg/L	0	Quarterly	Discharged to Outfall 001	
03A027	TA3-2327	2017	Mar	Total Suspended Solids				****	****	****	mg/L	30 Monthly, 100 Daily Max	mg/L	0	Quarterly	Discharged to Outfall 001	
03A027	TA3-2327	2017	Jun	Total Suspended Solids				****	****	****	mg/L	30 Monthly, 100 Daily Max	mg/L	0	Quarterly	Discharged to Outfall 001	
03A027	TA3-2327	2017	Sept	Total Suspended Solids				****	****	****	mg/L	30 Monthly, 100 Daily Max	mg/L	0	Quarterly	Discharged to Outfall 001	
03A027	TA3-2327	2017	Dec	Total Suspended Solids				****	****	****	mg/L	30 Monthly, 100 Daily Max	mg/L	0	Quarterly	Discharged to Outfall 001	
03A027	TA3-2327	2018	Mar	Total Suspended Solids				****	****	****	mg/L	30 Monthly, 100 Daily Max	mg/L	0	Quarterly	Discharged to Outfall 001	
03A027	TA3-2327	2018	Jun	Total Suspended Solids				****	****	****	mg/L	30 Monthly, 100 Daily Max	mg/L	0	Quarterly	Discharged to Outfall 001	
03A027	TA3-2327	2018	Aug	Total Suspended Solids				****	1.9	1.9	mg/L	30 Monthly, 100 Daily Max	****	1	Operational Sample	2019 Permit Application Sample	
03A027	TA3-2327	2018	Sept	Total Suspended Solids				****	****	****	mg/L	30 Monthly, 100 Daily Max	mg/L	0	Quarterly	Discharged to Outfall 001	
<b>Total Suspended Solids</b>					<b>Daily Average</b>				<b>2.3</b>				<b>mg/L</b>	<b>10</b>			
<b>Total Suspended Solids</b>					<b>Maximum 30 Day Average</b>				<b>4.86</b>				<b>mg/L</b>	<b>10</b>			
<b>Total Suspended Solids</b>					<b>Maximum</b>					<b>5.52</b>			<b>mg/L</b>	<b>10</b>			
03A027	TA3-2327	2014	Dec	Phosphorus, Total				****	3.19	3.19	mg/L	20 Monthly, 40 Daily Max	mg/L	1	Quarterly	Permit Requirement	
03A027	TA3-2327	2015	Mar	Phosphorus, Total				****	3.19	3.19	mg/L	20 Monthly 40 Daily Max	mg/L	1	Quarterly	Permit Requirement	
03A027	TA3-2327	2015	Jun	Phosphorus, Total				****	3.2	3.2	mg/L	20 Monthly 40 Daily Max	mg/L	1	Quarterly	Permit Requirement	
03A027	TA3-2327	2015	Sept	Phosphorus, Total				****	3.55	3.55	mg/L	20 Monthly 40 Daily Max	mg/L	1	Quarterly	Permit Requirement	
03A027	TA3-2327	2015	Dec	Phosphorus, Total				****	2.04	2.04	mg/L	20 Monthly 40 Daily Max	mg/L	1	Quarterly	Permit Requirement	
03A027	TA3-2327	2016	Mar	Phosphorus, Total				****	0.239	0.239	mg/L	20 Monthly 40 Daily Max	mg/L	1	Quarterly	Permit Requirement	
03A027	TA3-2327	2016	Jun	Phosphorus, Total				****	0.929	0.929	mg/L	20 Monthly 40 Daily Max	mg/L	1	Quarterly	Permit Requirement	
03A027	TA3-2327	2016	Sept	Phosphorus, Total				****	1.55	1.55	mg/L	20 Monthly 40 Daily Max	mg/L	1	Quarterly	Permit Requirement	
03A027	TA3-2327	2016	Dec	Phosphorus, Total				****	****	****	mg/L	20 Monthly 40 Daily Max	mg/L	0	Quarterly	Discharged to Outfall 001	
03A027	TA3-2327	2017	Mar	Phosphorus, Total				****	****	****	mg/L	20 Monthly 40 Daily Max	mg/L	0	Quarterly	Discharged to Outfall 001	
03A027	TA3-2327	2017	Jun	Phosphorus, Total				****	****	****	mg/L	20 Monthly 40 Daily Max	mg/L	0	Quarterly	Discharged to Outfall 001	
03A027	TA3-2327	2017	Sept	Phosphorus, Total				****	****	****	mg/L	20 Monthly 40 Daily Max	mg/L	0	Quarterly	Discharged to Outfall 001	
03A027	TA3-2327	2017	Dec	Phosphorus, Total				****	****	****	mg/L	20 Monthly 40 Daily Max	mg/L	0	Quarterly	Discharged to Outfall 001	
03A027	TA3-2327	2018	Mar	Phosphorus, Total				****	****	****	mg/L	20 Monthly 40 Daily Max	mg/L	0	Quarterly	Discharged to Outfall 001	
03A027	TA3-2327	2018	Jun	Phosphorus, Total				****	****	****	mg/L	20 Monthly 40 Daily Max	mg/L	0	Quarterly	Discharged to Outfall 001	
03A027	TA3-2327	2018	Aug	Phosphorus, Total				****	1.87	1.87	mg/L	****	****	1	Operational Sample	2019 Permit Application Sample	
03A027	TA3-2327	2018	Aug	Phosphorus, Total				****	****	****	mg/L	20 Monthly 40 Daily Max	mg/L	0	Quarterly	Discharged to Outfall 001	
<b>Phosphorus, Total</b>					<b>Daily Average</b>				<b>2.20</b>					<b>9</b>			
<b>Phosphorus, Total</b>					<b>Maximum 30 Day Average</b>				<b>3.55</b>					<b>9</b>			
<b>Phosphorus, Total</b>					<b>Maximum</b>					<b>3.55</b>				<b>9</b>			
03A027	TA3-2327	2015	Sept	Chromium VI					0.00641	0.00641	mg/L	NA	NA	1	Term	Permit Requirement	
<b>Chromium VI</b>					<b>Daily Average</b>				<b>0.00641</b>					<b>1</b>			
<b>Chromium VI</b>					<b>Maximum 30 Day Average</b>					<b>0.00641</b>				<b>1</b>			
<b>Chromium VI</b>					<b>Maximum</b>					<b>0.00641</b>				<b>1</b>			
03A027	TA3-2327	2015	Sept	Copper, Dissolved				****	0.0181	0.0181	mg/L	NA	NA	1	Yearly	Permit Requirement	
03A027	TA3-2327	2016	Sept	Copper, Dissolved				****	0.00847	0.00847	mg/L	NA	NA	2	Yearly	Permit Requirement	
03A027	TA3-2327	2017	Sept	Copper, Dissolved				****	****	****	mg/L	NA	NA	0	Yearly	Discharged to Outfall 001	

OUTFALL No.	TA - Bldg.	Year	Monitoring Period	Parameter	Quantity or Loading			Quality or Concentration								
					Average	Maximum	Units	Minimum	Average	Maximum	Units	Permit Limit	Units	Number of Samples	Frequently	Notes
03A027	TA3-2327	2018	Aug	Copper, Dissolved				****	0.0163	0.0163	mg/L	NA	NA	1	Operational Sample	2019 Permit Application Sample
03A027	TA3-2327	2018	Sept	Copper, Dissolved				****	****	****	mg/L	NA	NA	0	Yearly	Discharged to Outfall 001
<b>Copper, Dissolved</b>					<b>Daily Average</b>				<b>0.0143</b>					<b>4</b>		
<b>Copper, Dissolved</b>					<b>Maximum 30 Day Average</b>				<b>0.0181</b>					<b>4</b>		
<b>Copper, Dissolved</b>					<b>Maximum</b>					<b>0.0181</b>				<b>4</b>		
03A027	TA3-2327	2015	Sept	Aluminum, Total				****	0.0232	0.0232	mg/L	NA	NA	1	Yearly	Permit Requirement
03A027	TA3-2327	2016	Sept	Aluminum, Total				****	0.0156	0.0156	mg/L	NA	NA	1	Yearly	Permit Requirement
03A027	TA3-2327	2017	Sept	Aluminum, Total				****	****	****	mg/L	NA	NA	0	Yearly	Discharged to Outfall 001
03A027	TA3-2327	2018	Aug	Aluminum, Total				****	<0.0193	<0.0193	mg/L	NA	NA	1	Operational Sample	2019 Permit Application Sample
03A027	TA3-2327	2018	Sept	Aluminum, Total				****	****	****	mg/L	NA	NA	0	Yearly	Discharged to Outfall 001
<b>Aluminum, Total</b>					<b>Daily Average</b>				<b>0.0194</b>					<b>3</b>		
<b>Aluminum, Total</b>					<b>Maximum 30 Day Average</b>				<b>0.0232</b>					<b>3</b>		
<b>Aluminum, Total</b>					<b>Maximum</b>					<b>0.0232</b>				<b>3</b>		
03A027	TA3-2327	2015	Sept	PCBs, Total				****	0.000269	0.000269	ug/L	0.00064 Monthly Ave, 0.000642 Daily Max	ug/L	1	Yearly	Permit Requirement
03A027	TA3-2327	2016	Sept	PCBs, Total	0.0000065	0.0000065	lbs/day	****	0.0024	0.0024	ug/L	0.00064 Monthly Ave, 0.000642 Daily Max	ug/L	1	Yearly	Permit Requirement
03A027	TA3-2327	2017	Sept	PCBs, Total				****	****	****	ug/L	0.00064 Monthly Ave, 0.000642 Daily Max	ug/L	0	Yearly	Discharged to Outfall 001
03A027	TA3-2327	2018	Sept	PCBs, Total				****	****	****	ug/L	0.00064 Monthly Ave, 0.000642 Daily Max	ug/L	0	Yearly	Discharged to Outfall 001
<b>PCBs, Total</b>					<b>Daily Average</b>				<b>0.0013</b>					<b>2</b>		
<b>PCBs, Total</b>					<b>Maximum 30 Day Average</b>				<b>0.0024</b>					<b>2</b>		
<b>PCBs, Total</b>					<b>Maximum</b>					<b>0.0024</b>				<b>2</b>		
03A027	TA3-2327	2015	Sept	Adjusted Gross Alpha				****	****	****	pCi/L	NA	NA	0	Term	Not Required
03A027	TA3-2327	2016	Sept	Adjusted Gross Alpha				****	1.01	1.01	pCi/L	NA	NA	1	Term	Permit Requirement
03A027	TA3-2327	2017	Sept	Adjusted Gross Alpha				****	****	****	pCi/L	NA	NA	0	Term	Discharged to Outfall 001
03A027	TA3-2327	2018	Aug	Adjusted Gross Alpha				****	2.79	2.79	pCi/L	NA	NA	1	Operational Sample	2019 Permit Application Sample
03A027	TA3-2327	2018	Sept	Adjusted Gross Alpha				****	****	****	pCi/L	NA	NA	0	Term	Discharged to Outfall 001
<b>Adjusted Gross Alpha</b>					<b>Daily Average</b>				<b>1.90</b>					<b>2</b>		
<b>Adjusted Gross Alpha</b>					<b>Maximum 30 Day Average</b>				<b>2.79</b>					<b>2</b>		
<b>Adjusted Gross Alpha</b>					<b>Maximum</b>					<b>2.79</b>				<b>2</b>		

C-358A



# SAFETY DATA SHEET

U.S. Water Services

**C-358A**

## 1 PRODUCT AND COMPANY IDENTIFICATION

**Product Identifier:** C-358A  
**SDS Number:** 3120  
**Revision Date:** 12/14/2018  
**Version:** 1  
**Product Use:** Cooling Water Treatment  
**Supplier Details:** U.S. Water Services  
12270 43rd St. NE  
St. Michael, MN 55376  
**Contact:** Non-emergency #: 866-663-7632  
**Email:** SDS@uswaterservices.com  
**Web:** www.uswaterservices.com

**EMERGENCY RESPONSE: (ChemTel)**  
**US & Canada: 800-255-3924**  
**International: +01-813-248-0585**

## 2 HAZARDS IDENTIFICATION

### Classification of the Substance or Mixture

#### GHS Classification in Accordance with 29 CFR 1910 (OSHA HCS):

Physical, Corrosive to Metals, 1  
Health, Acute toxicity, 4 Oral  
Health, Skin corrosion/irritation, 1  
Health, Acute toxicity, 4 Inhalation

### GHS Label Elements, Including Precautionary Statements

**GHS Signal Word:** DANGER

**GHS Hazard Pictograms:**



### GHS Hazard Statements:

H290 - May be corrosive to metals  
H302 - Harmful if swallowed  
H314 - Causes severe skin burns and eye damage  
H332 - Harmful if inhaled

### GHS Precautionary Statements:

P260 - Do not breathe dust/fume/gas/mist/vapours/spray.  
P264 - Wash ... thoroughly after handling.  
P280 - Wear protective gloves/protective clothing/eye protection/face protection.  
P301 + P330 + P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.  
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses,





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present and easy to do. Continue rinsing.  
 P406 - Store in a corrosion resistant container with a resistant inner liner.

**Hazards not Otherwise Classified (HNOC) or not Covered by GHS**

PPE recommendation is advisory only and based on typical use conditions. An industrial hygienist or safety officer familiar with the specific situation of anticipated use must determine actual PPE required when using this product (29 CFR 1910.132)

**3 COMPOSITION/INFORMATION OF INGREDIENTS**

Chemical Ingredients		
CAS#	%	Chemical Name
1310-73-2	10-15%	Sodium hydroxide

**4 FIRST AID MEASURES**

**Inhalation:** Remove from contamination. If person has stopped breathing administer artificial respiration. Seek medical attention.

**Skin Contact:** Wash off with soap and plenty of water. Remove contaminated garments and wash or destroy. Seek medical attention if irritation develops. Consult a physician if irritation develops.

**Eye Contact:** Flush eyes with plenty of running water for several minutes. Seek medical attention.

**Ingestion:** If conscious, give plenty of water. If discomfort or other symptoms develop, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

**Most important symptoms & effects (acute & delayed):** Small burns may result from exposure

**Indication of need for immediate medical attention:** No data available

**Special treatment needs:** No data available

**5 FIRE FIGHTING MEASURES**

**Flash Point:** Does not Flash

**Autoignition Temp:** No data available

**LEL:** No data available

**UEL:** No data available

**Extinguishing Media:**

**Suitable:** Use extinguishing media suitable for surrounding fire.

**Unsuitable:** No information available

**Hazardous combustion products:** Hazardous decomposition products formed under fire conditions- Carbon oxides, and other hazardous compounds

**Unusual Fire or Explosion Hazards:** None known

**Special protective equipment/precautions:** Wear self-contained breathing apparatus





# SAFETY DATA SHEET

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## 6 ACCIDENTAL RELEASE MEASURES

**Personal Precautions, Protective equipment, emergency procedures:** Avoid contact with the material. See section 8 of SDS for PPE recommendations

**Environmental Precautions:** Keep runoff from entering drains or waterways

**Spill/Leak procedures:** Contain spill or leak. Dike area if necessary to prevent spill from spreading or entering sewers and waterways. Recover as much as possible then absorb remainder with inert material. Place into closed container for disposal.

**Regulatory Requirements:** Dispose of recovered material in accordance with all applicable state and federal regulations.

## 7 HANDLING AND STORAGE

**Handling Precautions:** Avoid contact with eyes, skin, or clothing. Do not taste or swallow. Do not inhale vapor or mist. Use with adequate ventilation. For industrial use only!

**Storage Requirements:** Keep away from children. Store in closed containers away from temperature extremes and incompatible materials. Store in properly labeled containers in accordance with all local, state and federal guidelines.

## 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

**Engineering Controls:** Provide local exhaust ventilation as needed to control misting.

**Personal Protective Equipment:** HMIS PP, C | Safety Glasses, Gloves, Apron

Respiratory protection: Not required under normal use conditions. If needed use MSHA/NIOSH approved respirator. Seek professional advice prior to respirator selection and use. Follow all requirements of OSHA respirator regulations (29 CFR 1910.134) Safety Stations: Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area. General Hygiene: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, using the toilet, or applying cosmetics. PPE recommendation is advisory only and based on typical use conditions. An industrial hygienist or safety officer familiar with the specific situation of anticipated use must determine actual PPE required when using this product (29 CFR 1910.132)

**Exposure Limits:**

**Sodium hydroxide (CAS: 1310-73-2)**

PEL (Inhalation): 2 mg/m<sup>3</sup> Ceiling (OSHA)

TLV (Inhalation): 2 mg/m<sup>3</sup> Ceiling (ACGIH)

## 9 PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance:</b>	Yellow to Amber	<b>Odor:</b>	Mild
<b>Physical State:</b>	Liquid	<b>Solubility:</b>	Complete
<b>Odor Threshold:</b>	No data available	<b>Freezing/Melting Pt.:</b>	No data available
<b>Spec Grav./Density:</b>	1.12	<b>Flash Point:</b>	Does not flash
<b>Viscosity:</b>	No data available	<b>Auto-Ignition Temp:</b>	No data available
<b>Boiling Point:</b>	>212°F	<b>UFL/LFL:</b>	No data available
<b>Partition Coefficient:</b>	No data available		
<b>Vapor Pressure:</b>	No data available		



# SAFETY DATA SHEET

U.S. Water Services

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pH: >12  
Evap. Rate: <1 (butyl acetate = 1)  
Decomp Temp: No data available

## 10 STABILITY AND REACTIVITY

**Chemical Stability:** Product is stable under normal storage and use conditions.  
**Conditions to Avoid:** Avoid temperature extremes. Protect from freezing.  
**Materials to Avoid:** Acids, oxidizing materials, halogen compounds, copper, zinc and galvanized metals.  
**Hazardous Decomposition:** Carbon monoxide, carbon dioxide, ammonia, and oxides of nitrogen  
**Hazardous Polymerization:** Will not occur.

## 11 TOXICOLOGICAL INFORMATION

**Acute Toxicity:** No data available  
**Skin Corrosion/Irritation:** No data available  
**Serious eye damage/irritation:** No data available  
**Respiratory or skin sensitization:** No data available  
**Specific target organ toxicity (single exposure):** No data available  
**Specific target organ toxicity (repeated exposure):** No data available  
**Aspiration hazard:** No data available  
**Carcinogenicity:** No carcinogenic effects are known for the components of this product  
**Germ Cell Mutagenicity:** No mutagenic effects are known for the components of this product  
**Teratogenicity:** No teratogenic effects are known for the components of this product

## 12 ECOLOGICAL INFORMATION

**Aquatic Toxicity** No data available  
**Elimination (persistence & degradability):** No data available  
**Bioaccumulative potential:** No data available  
**Mobility in soil:** No data available  
**Other adverse effects:** No data available

## 13 DISPOSAL CONSIDERATIONS

Dispose of in accordance with local regulations.

This material should be fully characterized for toxicity and possible reactivity prior to disposal (40 CFR 261). Use which results in chemical or physical change or contamination may subject it to regulation as a hazardous waste. Along with properly characterizing all waste materials, consult state and local regulations regarding the proper disposal of this material.

Container contents should be completely used and containers should be emptied prior to discard. Container rinsate could be considered a RCRA hazardous waste and must be disposed of with care and in full compliance with federal, state and local regulations. Larger empty containers, such as drums, should be returned to the distributor or to a drum reconditioner. To assure proper disposal of smaller empty containers, consult with state and local regulations and disposal authorities.



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## 14 TRANSPORT INFORMATION

UN1719, Caustic alkali liquids, n.o.s., 8, PGI, (Sodium hydroxide)

Certain shipping modes or package sizes may have exceptions from the transport regulations. The classification provided may not reflect those exceptions and may not apply to all shipping modes or package sizes.

DOT Transportation data (49 CFR 172.101)

See section 15 for information on Reportable Quantity chemicals (RQ)

## 15 REGULATORY INFORMATION

Component (CAS#) [%] - CODES

RQ(1000LBS), Sodium hydroxide (1310-73-2) [10-15%] CERCLA, CSWHS, MASS, OSHAWAC, PA, TSCA, TXAIR

### Regulatory CODE Descriptions

- RQ = Reportable Quantity
- CERCLA = Superfund clean up substance
- CSWHS = Clean Water Act Hazardous substances
- MASS = MA Massachusetts Hazardous Substances List
- OSHA = OSHA Workplace Air Contaminants
- PA = PA Right-To-Know List of Hazardous Substances
- TSCA = Toxic Substances Control Act
- TXAIR = TX Air Contaminants with Health Effects Screening Level

TSCA: All components of this product are listed (or are not required to be listed) in the TSCA inventory  
 EPA / CERCLA / SARA TITLE III:  
 Toxic Chemical List (SARA 313): This product does not contain any chemicals subject to routine annual toxic chemical release reporting.  
 Extremely Hazardous Substance (SARA 302/304): This product does not contain any extremely hazardous substances subject to emergency planning requirements.  
 SARA 312: Acute  
 RCRA: D002

## 16 OTHER INFORMATION

HMIS III: Health = 2, Fire = 0, Physical Hazard = 0  
 HMIS PPE: C - Safety Glasses, Gloves, Apron

HMIS	
HEALTH	2
FLAMMABILITY	0
PHYSICAL HAZARD	0
PERSONAL PROTECTION	C







# SAFETY DATA SHEET

U.S. Water Services

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**Author:** U.S. Water Services

**Revision Notes:** Updated to GHS format

**Disclaimer:**

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose(s). The above information is not claiming characteristics of the product in term of legal claims of performance / guarantee. This information only describes safety measures and no liability may arise from the use or application of the product described herein. This information is given in good faith and based on our current knowledge of the product.

Revision Date: 12/14/2018

R-630



# SAFETY DATA SHEET

U.S. Water Services

**R-630**

## 1 PRODUCT AND COMPANY IDENTIFICATION

**Product Identifier:** R-630  
**SDS Number:** W0006  
**Revision Date:** 8/16/2017  
**Version:** 1  
**Product Use:** Boiler Water Treatment  
**Supplier Details:** U.S. Water Services  
12270 43rd St. NE  
St. Michael, MN 55376

**Contact:** Non-emergency #: 866-663-7632  
**Email:** SDS@uswaterservices.com  
**Web:** www.uswaterservices.com

**EMERGENCY RESPONSE: (ChemTel)**  
**US & Canada: 800-255-3924**  
**International: +01-813-248-0585**

## 2 HAZARDS IDENTIFICATION

### Classification of the Substance or Mixture

**GHS Classification in Accordance with 29 CFR 1910 (OSHA HCS):**  
Health, Skin corrosion/irritation, 2

### GHS Label Elements, Including Precautionary Statements

**GHS Signal Word:** **WARNING**

**GHS Hazard Pictograms:**



### GHS Hazard Statements:

H315 - Causes skin irritation

### GHS Precautionary Statements:

P264 - Wash thoroughly after handling.  
P280 - Wear protective gloves/protective clothing/eye protection/face protection.  
P302 + P352 - IF ON SKIN: Wash with plenty of water  
P332 + P313 - If skin irritation occurs: Get medical advice/attention.  
P361 + P364 - Take off immediately all contaminated clothing and wash it before reuse.  
P301 + P312 - IF SWALLOWED: Call a POISON CENTER/ doctor/...if you feel unwell.

**Hazards not Otherwise Classified (HNOC) or not Covered by GHS**





# SAFETY DATA SHEET

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PPE recommendation is advisory only and based on typical use conditions. An industrial hygienist or safety officer familiar with the specific situation of anticipated use must determine actual PPE required when using this product (29 CFR 1910.132)

## 3 COMPOSITION/INFORMATION OF INGREDIENTS

### Ingredients:

Cas#	%	Chemical Name
7681-57-4	15-25%	Sodium metabisulfite

## 4 FIRST AID MEASURES

- Inhalation:** Remove from contamination. If person has stopped breathing administer artificial respiration. Seek medical attention.
- Skin Contact:** Wash off with soap and plenty of water. Remove contaminated garments and wash or destroy. Seek medical attention if irritation develops. Consult a physician if irritation develops.
- Eye Contact:** Flush eyes with plenty of running water for 15 minutes. Seek medical attention.
- Ingestion:** If conscious, give plenty of water. If discomfort or other symptoms develop, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

**Most important symptoms & effects (acute & delayed):** No data available  
**Indication of need for immediate medical attention:** No data available  
**Special treatment needs:** No data available

## 5 FIRE FIGHTING MEASURES

- Flash Point:** Does not Flash  
**Autoignition Temp:** No data available  
**LEL:** No data available  
**UEL:** No data available

### Extinguishing Media:

- Suitable:** Use extinguishing media suitable for surrounding fire.
- Unsuitable:** No information available
- Hazardous combustion products:** Hazardous decomposition products formed under fire conditions- Carbon oxides, and other hazardous compounds
- Unusual Fire or Explosion Hazards:** None known
- Special protective equipment/precautions:** Wear self-contained breathing apparatus

## 6 ACCIDENTAL RELEASE MEASURES

- Personal Precautions, Protective equipment, emergency procedures:** Avoid contact with the material. See section 8 of SDS for PPE recommendations
- Environmental Precautions:** Keep runoff from entering drains or waterways



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**Spill/Leak procedures:** Contain spill or leak. Dike area if necessary to prevent spill from spreading or entering sewers and waterways. Recover as much as possible then absorb remainder with inert material. Place into closed container for disposal.

**Regulatory Requirements:** Dispose of recovered material in accordance with all applicable state and federal regulations.

## 7 HANDLING AND STORAGE

**Handling Precautions:** Avoid contact with eyes, skin, or clothing. Do not taste or swallow. Do not inhale vapor or mist. Use with adequate ventilation. For industrial use only!

**Storage Requirements:** Keep away from children. Store in closed containers away from temperature extremes and incompatible materials. Store in properly labeled containers in accordance with all local, state and federal guidelines. Do not store in zinc, aluminum, brass, or tin.

## 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

**Engineering Controls:** Provide local exhaust ventilation as needed to control misting.

**Personal Protective Equipment:** HMIS PP, C | Safety Glasses, Gloves, Apron

Respiratory protection: If needed use MSHA/NIOSH approved respirator. Seek professional advice prior to respirator selection and use. Follow all requirements of OSHA respirator regulations (29 CFR 1910.134)

Safety Stations: Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

General Hygiene: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, using the toilet, or applying cosmetics.

PPE recommendation is advisory only and based on typical use conditions. An industrial hygienist or safety officer familiar with the specific situation of anticipated use must determine actual PPE required when using this product (29 CFR 1910.132)

**Exposure Limits:**

OSHA (TWA)/PEL): Not Established

ACGIH (TWA/TLV): Not Established

## 9 PHYSICAL AND CHEMICAL PROPERTIES

**Appearance:** Clear, Pink

**Physical State:** Liquid

**Odor Threshold:** No data available

**Spec Grav./Density:** 10.43 Lb/Gal

**Viscosity:** No data available

**Boiling Point:** >212°F

**Partition Coefficient:** No data available

**Vapor Pressure:** No data available

**pH:** ~6.5

**Evap. Rate:** <1 (butyl acetate = 1)

**Decomp Temp:** No data available

**Odor:** No appreciable odor

**Solubility:** Complete

**Freezing/Melting Pt.:** No data available

**Flash Point:** Does not flash

**Auto-Ignition Temp:** No data available

**UFL/LFL:** No data available



# SAFETY DATA SHEET

U.S. Water Services

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## 10 STABILITY AND REACTIVITY

**Chemical Stability:** Product is stable under normal storage and use conditions.

**Conditions to Avoid:** Avoid temperature extremes. Protect from freezing

**Materials to Avoid:** Strong Oxidizing Agents may cause exothermic reaction

**Hazardous Decomposition:** Thermal decomposition may produce carbon oxides and other toxic compounds.

**Hazardous Polymerization:** Will not occur.

## 11 TOXICOLOGICAL INFORMATION

**Acute Toxicity:** No data available  
**Skin Corrosion/Irritation:** No data available  
**Serious eye damage/irritation:** No data available  
**Respiratory or skin sensitization:** No data available  
**Specific target organ toxicity (single exposure):** No data available  
**Specific target organ toxicity (repeated exposure):** No data available  
**Aspiration hazard:** No data available  
**Carcinogenicity:** No carcinogenic effects are known for the components of this product  
**Germ Cell Mutagenicity:** No mutagenic effects are known for the components of this product  
**Teratogenicity:** No teratogenic effects are known for the components of this product

## 12 ECOLOGICAL INFORMATION

**Aquatic Toxicity:** No data available  
**Elimination (persistence & degradability):** No data available  
**Bioaccumulative potential:** No data available  
**Mobility in soil:** No data available  
**Other adverse effects:** No data available

## 13 DISPOSAL CONSIDERATIONS

Dispose of in accordance with local regulations.

This material should be fully characterized for toxicity and possible reactivity prior to disposal (40 CFR 261). Use which results in chemical or physical change or contamination may subject it to regulation as a hazardous waste. Along with properly characterizing all waste materials, consult state and local regulations regarding the proper disposal of this material.

Container contents should be completely used and containers should be emptied prior to discard. Container rinsate could be considered a RCRA hazardous waste and must be disposed of with care and in full compliance with federal, state and local regulations. Larger empty containers, such as drums, should be returned to the distributor or to a drum reconditioner. To assure proper disposal of smaller empty containers, consult with state and local regulations and disposal authorities.

## 14 TRANSPORT INFORMATION





# SAFETY DATA SHEET

U.S. Water Services

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**Proper Shipping Name:** Non-Regulated

DOT Transportation data (49 CFR 172.101)

## 15 REGULATORY INFORMATION

### Component (CAS#) [%] - CODES

Sodium metabisulfite (7681-57-4) [15-25%] MASS, OSHAWAC, PA, TSCA, TXAIR

### Regulatory CODE Descriptions

**MASS = MA** Massachusetts Hazardous Substances List

**OSHAWAC = OSHA** Workplace Air Contaminants

**PA = PA** Right-To-Know List of Hazardous Substances

**TSCA = Toxic** Substances Control Act

**TXAIR = TX** Air Contaminants with Health Effects Screening Level

**TSCA:** All components of this product are listed (or are not required to be listed) in the TSCA inventory

**EPA / CERCLA / SARA TITLE III:**

**Toxic Chemical List (SARA 313):** This product does not contain any chemicals subject to routine annual toxic chemical release reporting.

**Extremely Hazardous Substance (SARA 302/304):** This product does not contain any extremely hazardous substances subject to emergency planning requirements.

**SARA 312:** Acute

**RCRA:** No data available



# SAFETY DATA SHEET

U.S. Water Services

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## 16 OTHER INFORMATION

HMIS III: Health = 2, Fire = 0, Physical Hazard = 0  
HMIS PPE: C - Safety Glasses, Gloves, Apron

HMIS	
HEALTH	2
FLAMMABILITY	0
PHYSICAL HAZARD	0
PERSONAL PROTECTION	C

Author: U.S. Water Services

Revision Notes: Updated to GHS format

### Disclaimer:

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose(s). The above information is not claiming characteristics of the product in term of legal claims of performance / guarantee. This information only describes safety measures and no liability may arise from the use or application of the product described herein. This information is given in good faith and based on our current knowledge of the product.

**NPDES Permit No. NM0028355 - Outfall 051 Radioactive Liquid Waste Treatment Facility**  
**Effluent Discharge: 06/18/19**

Field Sample ID	Sample Date	Lab Method	Parameter Name	Field Preparation Code	Report Result	Report Units	Lab Qualifier	EPA MQL (ug/L)	Reported Value per Part II Section A of NM0028355	NM0028355 May 2015 Permit	NM WQS 20.6.4.900 NMAC Section J	Form 2C	Notes/Comments
NP051-19-181609	06/18/2019	EPA:350.1	Ammonia as Nitrogen	UF	1.17	mg/L						X	
NP051-19-181616	06/18/2019	SM:5210B	Biochemical Oxygen Demand (BO	UF	1.00	mg/L	Ud					X	
NP051-19-181609	06/18/2019	EPA:410.4	Chemical Oxygen Demand (COD)	UF	15.5	mg/L	J		15.5	X		X	
NP051-19-181609	06/18/2019	SM:2120B	Color	UF	5.00	PCU	UH					X	
NP051-19-181609	06/18/2019	EPA:300.0	Bromide	UF	0.067	mg/L	U					X	
NP051-19-181578	06/18/2019	EPA:335.4	Cyanide (Total)	UF	0.00167	mg/L	U	10			X	X	
NP051-19-181609	06/18/2019	EPA:335.4	Cyanide (Total)	UF	0.00167	mg/L	U	10			X	X	
NP051-19-181621	06/18/2019	EPA:1603	Escherichia coli	UF	1	cfu/100ml	U					X	Indicator for Fecal Coliform.
NP051-19-181578	06/18/2019	EPA:300.0	Fluoride	UF	0.116	mg/L						X	
NP051-19-181609	06/18/2019	EPA:300.0	Fluoride	UF	0.120	mg/L						X	
NP051-19-181617	06/18/2019	SM:A2340B	Hardness	UF	74.4	mg/L		74.4		X		X	
NP051-19-181616	06/18/2019	SM:A2340B	Hardness	UF	77.4	mg/L		77.4		X		X	
NP051-19-182718	06/18/2019	SM:A2340B	Hardness	F	77.1	mg/L					X		
NP051-19-181578	06/18/2019	EPA:353.2	Nitrate-Nitrite as Nitrogen	UF	7.63	mg/L					X	X	
NP051-19-181609	06/18/2019	EPA:353.2	Nitrate-Nitrite as Nitrogen	UF	7.36	mg/L					X	X	
NP051-19-181609	06/18/2019	EPA:1664A	Oil and Grease	UF	1.41	mg/L	U					X	
NP051-19-181578	06/18/2019	SW-846:6850	Perchlorate	UF	0.050	ug/L	U	<0.05		X		X	
NP051-19-181609	06/18/2019	SW-846:6850	Perchlorate	UF	0.050	ug/L	U	<0.05		X		X	
NP051-19-181578	06/18/2019	EPA:300.0	Sulfate	UF	7.04	mg/L						X	
NP051-19-181609	06/18/2019	EPA:300.0	Sulfate	UF	7.00	mg/L						X	
NP051-19-181609	06/18/2019	SM:4500S	Sulfide, Total	UF	0.033	mg/L	U					X	
<b>NOT ANALYZED</b>	<b>06/18/2019</b>		<b>Surfactants</b>	<b>UF</b>								<b>X</b>	<b>Laboratory equipment malfunctioned and a result could not be provided.</b>
NP051-19-181618	06/18/2019	EPA:1613B	Tetrachlorodibenzodioxin[2,3,7,8-]	UF	0.0000103	ug/L	U				X	X	
NP051-19-181578	06/18/2019	EPA:160.1	Total Dissolved Solids (TDS)	UF	143	mg/L						X	
NP051-19-181578	06/18/2019	EPA:351.2	Total Kjeldahl Nitrogen	UF	1.69	mg/L						X	
NP051-19-181609	06/18/2019	EPA:351.2	Total Kjeldahl Nitrogen	UF	1.49	mg/L						X	
NP051-19-181609	06/18/2019	SM:5310B	Total Organic Carbon (TOC)	UF	0.660	mg/L	U					X	
NP051-19-181609	06/18/2019	EPA:365.4	Total Phosphate as Phosphorus	UF	0.020	mg/L	U					X	
NP051-19-181609	06/18/2019	EPA:420.4	Total Recoverable Phenolics	UF	1.67	ug/L	U					X	
NP051-19-181616	06/18/2019	SM:2540D	Total Suspended Solids (TSS)	UF	0.570	mg/L	U	<0.57		X		X	
NP051-19-181617	06/18/2019	EPA:200.8	Aluminum	UF	19.3	ug/L	U	2.5				X	
NP051-19-181578	06/18/2019	EPA:200.8	Aluminum	UF	19.3	ug/L	U	2.5				X	
NP051-19-181613	06/18/2019	EPA:200.8	Aluminum	F10u	19.3	ug/L	U	2.5	NA	X	X		Not reported on June DMR. Term Reporting will be Sept DMR.
NP051-19-181616	06/18/2019	EPA:200.8	Aluminum	UF	19.3	ug/L	U	2.5				X	
NP051-19-182718	06/18/2019	EPA:200.8	Aluminum	F	19.3	ug/L	U	2.5			X		
NP051-19-181617	06/18/2019	EPA:200.8	Antimony	UF	1.00	ug/L	U	60				X	
NP051-19-181578	06/18/2019	EPA:200.8	Antimony	UF	1.00	ug/L	U	60				X	
NP051-19-181616	06/18/2019	EPA:200.8	Antimony	UF	1.00	ug/L	U	60				X	
NP051-19-182718	06/18/2019	EPA:200.8	Antimony	F	1.00	ug/L	U	60			X		
NP051-19-181617	06/18/2019	EPA:200.8	Arsenic	UF	2.00	ug/L	U	0.5				X	
NP051-19-181578	06/18/2019	EPA:200.8	Arsenic	UF	2.00	ug/L	U	0.5				X	
NP051-19-181616	06/18/2019	EPA:200.8	Arsenic	UF	2.00	ug/L	U	0.5				X	
NP051-19-182718	06/18/2019	EPA:200.8	Arsenic	F	2.00	ug/L	U	0.5			X		
NP051-19-181617	06/18/2019	EPA:200.8	Barium	UF	1.87	ug/L	J	100				X	
NP051-19-181578	06/18/2019	EPA:200.8	Barium	UF	1.54	ug/L	J	100				X	
NP051-19-181616	06/18/2019	EPA:200.8	Barium	UF	1.73	ug/L	J	100				X	
NP051-19-182718	06/18/2019	EPA:200.8	Barium	F	1.51	ug/L	J	100			X		
NP051-19-181617	06/18/2019	EPA:200.8	Beryllium	UF	0.200	ug/L	U	0.5					
NP051-19-181578	06/18/2019	EPA:200.8	Beryllium	UF	0.200	ug/L	U	0.5					
NP051-19-181616	06/18/2019	EPA:200.8	Beryllium	UF	0.200	ug/L	U	0.5					
NP051-19-182718	06/18/2019	EPA:200.8	Beryllium	F	0.200	ug/L	U	0.5			X		



Field Sample ID	Sample Date	Lab Method	Parameter Name	Field Preparation Code	Report Result	Report Units	Lab Qualifier	EPA MQL (ug/L)	Reported Value per Part II Section A of NM0028355	NM0028355 May 2015 Permit	NM WQS 20.6.4.900 NMAC Section J	Form 2C	Notes/Comments
NP051-19-181617	06/18/2019	EPA:200.8	Boron	UF	93.8	ug/L		100				X	
NP051-19-181578	06/18/2019	EPA:200.7	Boron	UF	85.7	ug/L						X	
NP051-19-181616	06/18/2019	EPA:200.8	Boron	UF	92.9	ug/L		100				X	
NP051-19-182718	06/18/2019	EPA:200.8	Boron	F	93.2	ug/L		100			X		
NP051-19-181617	06/18/2019	EPA:200.8	Cadmium	UF	0.300	ug/L	U	1	NA	X		X	Not reported on June DMR. Term Reporting will be Sept DMR.
NP051-19-181578	06/18/2019	EPA:200.8	Cadmium	UF	0.300	ug/L	U	1	NA	X		X	Not reported on June DMR. Term Reporting will be Sept DMR.
NP051-19-181616	06/18/2019	EPA:200.8	Cadmium	UF	0.300	ug/L	U	1	NA	X		X	Not reported on June DMR. Term Reporting will be Sept DMR.
NP051-19-182718	06/18/2019	EPA:200.8	Cadmium	F	0.300	ug/L	U	1			X		
NP051-19-181617	06/18/2019	EPA:200.8	Chromium	UF	3.00	ug/L	U	10	0	X		X	Not Detected below the MDL and MQL.
NP051-19-181578	06/18/2019	EPA:200.8	Chromium	UF	3.00	ug/L	U	10	0	X		X	Not Detected below the MDL and MQL.
NP051-19-181616	06/18/2019	EPA:200.8	Chromium	UF	3.00	ug/L	U	10	0	X		X	Not Detected below the MDL and MQL.
NP051-19-182718	06/18/2019	EPA:200.8	Chromium	F	3.00	ug/L	U	10			X		
NOT COLLECTED	06/18/2019		Chromium VI, Dissolved	F							X		A filtered Cr VI was not collected. Note that the Total Cr VI and Cr III were <MDL.
NP051-19-181616	06/18/2019	SM:3500 Cr-B	Chromium VI, Total	UF	3	ug/L	UH		NA	X			Not reported on June DMR. Term Reporting will be Sept DMR.
NOT COLLECTED	06/18/2019		Chromium III, Dissolved	F							X		A filtered Cr VI was not collected. Note that the Total Cr VI and Cr III were <MDL.
NP051-19-181616	06/18/2019	Cr(III)_calculated	Chromium III, Dissolved	UF	0.003	mg/L	U		NA	X			Not reported on June DMR. Term Reporting will be Sept DMR.
NP051-19-181617	06/18/2019	EPA:200.8	Cobalt	UF	0.905	ug/L	J	50				X	
NP051-19-181578	06/18/2019	EPA:200.8	Cobalt	UF	1	ug/L		50				X	
NP051-19-181616	06/18/2019	EPA:200.8	Cobalt	UF	0.914	ug/L	J	50				X	
NP051-19-182718	06/18/2019	EPA:200.8	Cobalt	F	1.62	ug/L		50			X		
NP051-19-181617	06/18/2019	EPA:200.8	Copper	UF	10.2	ug/L		0.5	10.2	X		X	
NP051-19-181578	06/18/2019	EPA:200.8	Copper	UF	11	ug/L		0.5	11	X		X	
NP051-19-181616	06/18/2019	EPA:200.8	Copper	UF	10.6	ug/L		0.5	10.6	X		X	
NP051-19-182718	06/18/2019	EPA:200.8	Copper	F	10.4	ug/L		0.5			X		
NP051-19-181617	06/18/2019	EPA:200.8	Iron	UF	44.8	ug/L	J					X	
NP051-19-181578	06/18/2019	EPA:200.7	Iron	UF	44.9	ug/L	J					X	
NP051-19-181616	06/18/2019	EPA:200.8	Iron	UF	46.4	ug/L	J					X	
NP051-19-181617	06/18/2019	EPA:200.8	Lead	UF	0.500	ug/L	U	0.5	0	X		X	
NP051-19-181578	06/18/2019	EPA:200.8	Lead	UF	0.500	ug/L	U	0.5	0	X		X	
NP051-19-181616	06/18/2019	EPA:200.8	Lead	UF	0.524	ug/L	J	0.5	0.524	X		X	
NP051-19-182718	06/18/2019	EPA:200.8	Lead	F	0.500	ug/L	U	0.5			X		
NP051-19-181617	06/18/2019	EPA:200.8	Magnesium	UF	12.8	mg/L						X	
NP051-19-181616	06/18/2019	EPA:200.8	Magnesium	UF	13.3	mg/L						X	
NP051-19-182718	06/18/2019	EPA:200.8	Magnesium	F	13.2	mg/L							
NP051-19-181578	06/18/2019	EPA:200.7	Manganese	UF	21.4	ug/L				X		X	
NP051-19-181616	06/18/2019	EPA:200.8	Manganese	UF	20.8	ug/L				X		X	
NP051-19-181617	06/18/2019	EPA:200.8	Manganese	UF	20.4	ug/L				X		X	
NP051-19-2718	06/18/2019	EPA 200.8	Manganese, Dissolved	F	23	ug/L					X		
NP051-19-181617	06/18/2019	EPA:245.2	Mercury	UF	0.067	ug/L	U	0.005	NA	X		X	Not reported on June DMR. Term Reporting will be Sept DMR.
NP051-19-181578	06/18/2019	EPA:245.2	Mercury	UF	0.067	ug/L	U	0.005	NA	X		X	Not reported on June DMR. Term Reporting will be Sept DMR.
NP051-19-181616	06/18/2019	EPA:245.2	Mercury	UF	0.067	ug/L	U	0.005	NA	X		X	Not reported on June DMR. Term Reporting will be Sept DMR.
NOT COLLECTED	06/18/2019		Mercury, Dissolved	F							X		A filtered Hg was not collected. Note that the Total Hg was <MDL.
NP051-19-181617	06/18/2019	EPA:200.8	Molybdenum	UF	0.200	ug/L	U	10				X	
NP051-19-181578	06/18/2019	EPA:200.8	Molybdenum	UF	0.200	ug/L	U	10				X	
NP051-19-181616	06/18/2019	EPA:200.8	Molybdenum	UF	0.200	ug/L	U	10				X	
NP051-19-182718	06/18/2019	EPA:200.8	Molybdenum	F	0.200	ug/L	U	10			X		
NP051-19-181617	06/18/2019	EPA:200.8	Nickel	UF	5.98	ug/L		0.5	NA	X		X	Not reported on June DMR. Term Reporting will be Sept DMR.
NP051-19-181578	06/18/2019	EPA:200.8	Nickel	UF	6.59	ug/L		0.5	NA	X		X	Not reported on June DMR. Term Reporting will be Sept DMR.
NP051-19-181616	06/18/2019	EPA:200.8	Nickel	UF	6.22	ug/L		0.5	NA	X		X	Not reported on June DMR. Term Reporting will be Sept DMR.
NP051-19-182718	06/18/2019	EPA:200.8	Nickel	F	6.51	ug/L		0.5			X		
NP051-19-181617	06/18/2019	EPA:200.8	Selenium	UF	2.00	ug/L	U	5	NA	X		X	Not reported on June DMR. Term Reporting will be Sept DMR.
NP051-19-181578	06/18/2019	EPA:200.8	Selenium	UF	2.00	ug/L	U	5	NA	X		X	Not reported on June DMR. Term Reporting will be Sept DMR.
NP051-19-181616	06/18/2019	EPA:200.8	Selenium	UF	2.00	ug/L	U	5	NA	X		X	Not reported on June DMR. Term Reporting will be Sept DMR.
NP051-19-182718	06/18/2019	EPA:200.8	Selenium	F	2.00	ug/L	U	5			X		
NP051-19-181617	06/18/2019	EPA:200.8	Silver	UF	0.300	ug/L	U	0.5				X	

Field Sample ID	Sample Date	Lab Method	Parameter Name	Field Preparation Code	Report Result	Report Units	Lab Qualifier	EPA MQL (ug/L)	Reported Value per Part II Section A of NM0028355	NM0028355 May 2015 Permit	NM WQS 20.6.4.900 NMAC Section J	Form 2C	Notes/Comments
NP051-19-181578	06/18/2019	EPA:200.8	Silver	UF	0.300	ug/L	U	0.5				X	
NP051-19-181616	06/18/2019	EPA:200.8	Silver	UF	0.300	ug/L	U	0.5				X	
NP051-19-182718	06/18/2019	EPA:200.8	Silver	F	0.300	ug/L	U	0.5			X		
NP051-19-181617	06/18/2019	EPA:200.8	Thallium	UF	0.600	ug/L	U	0.5				X	
NP051-19-181578	06/18/2019	EPA:200.8	Thallium	UF	0.600	ug/L	U	0.5				X	
NP051-19-181616	06/18/2019	EPA:200.8	Thallium	UF	0.600	ug/L	U	0.5				X	
NP051-19-182718	06/18/2019	EPA:200.8	Thallium	F	0.600	ug/L	U	0.5			X		
NP051-19-181617	06/18/2019	EPA:200.8	Tin	UF	1.00	ug/L	U					X	
NP051-19-181616	06/18/2019	EPA:200.8	Tin	UF	1.00	ug/L	U					X	
NP051-19-182718	06/18/2019	EPA:200.8	Tin	F	1.00	ug/L	U						
NP051-19-181617	06/18/2019	EPA:200.8	Titanium	UF	2.00	ug/L	U					X	
NP051-19-181616	06/18/2019	EPA:200.8	Titanium	UF	2.00	ug/L	U					X	
NP051-19-182718	06/18/2019	EPA:200.8	Titanium	F	2.00	ug/L	U						
NP051-19-181578	06/18/2019	EPA:200.8	Uranium	UF	0.17	ug/L	J						
NP051-19-181617	06/18/2019	EPA:200.8	Vanadium	UF	3.30	ug/L	U	50					
NP051-19-181616	06/18/2019	EPA:200.8	Vanadium	UF	3.30	ug/L	U	50					
NP051-19-182718	06/18/2019	EPA:200.8	Vanadium	F	3.30	ug/L	U	50			X		
NP051-19-181617	06/18/2019	EPA:200.8	Zinc	UF	6.94	ug/L	J	20	0	X		X	Detected Below the EPA MQL so the DMR reported value is zero.
NP051-19-181578	06/18/2019	EPA:200.7	Zinc	UF	7.79	ug/L	J					X	
NP051-19-181616	06/18/2019	EPA:200.8	Zinc	UF	7.07	ug/L	J	20	0	X		X	Detected Below the EPA MQL so the DMR reported value is zero.
NP051-19-182718	06/18/2019	EPA:200.8	Zinc	F	7.61	ug/L	J	20			X		
NP051-19-181618	06/18/2019	EPA:1668C	PCB-1	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-10	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
RESULT PENDING	06/18/2019	EPA 608.3	PCB-1016	UF				0.00064				X	RESULT PENDING. Analytical Data will be provided in July DMR.
NP051-19-181618	06/18/2019	EPA:1668C	PCB-103	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-104	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-105	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-106	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-107	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-108/PCB-124	UF	0.000207	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-11	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-110/PCB-115	UF	0.000207	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-111	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-112	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-114	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-118	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-12/PCB-13	UF	0.000207	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-120	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-121	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-122	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
RESULT PENDING	06/18/2019	EPA 608.3	PCB-1221	UF				0.00064				X	RESULT PENDING. Analytical Data will be provided in July DMR.
NP051-19-181618	06/18/2019	EPA:1668C	PCB-123	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
RESULT PENDING	06/18/2019	EPA 608.3	PCB-1232	UF				0.00064				X	RESULT PENDING. Analytical Data will be provided in July DMR.
RESULT PENDING	06/18/2019	EPA 608.3	PCB-1242	UF				0.00064				X	RESULT PENDING. Analytical Data will be provided in July DMR.
RESULT PENDING	06/18/2019	EPA 608.3	PCB-1248	UF				0.00064				X	RESULT PENDING. Analytical Data will be provided in July DMR.
RESULT PENDING	06/18/2019	EPA 608.3	PCB-1254	UF				0.00064				X	RESULT PENDING. Analytical Data will be provided in July DMR.
NP051-19-181618	06/18/2019	EPA:1668C	PCB-126	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
RESULT PENDING	06/18/2019	EPA 608.3	PCB-1260	UF				0.00064				X	RESULT PENDING. Analytical Data will be provided in July DMR.
NP051-19-181618	06/18/2019	EPA:1668C	PCB-127	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-128/PCB-166	UF	0.000207	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-129/PCB-138/PCB-163	UF	0.00031	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-130	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-131	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-132	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-133	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation

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NP051-19-181618	06/18/2019	EPA:1668C	PCB-134	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-135/PCB-151	UF	0.000207	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-136	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-137	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-139/PCB-140	UF	0.000207	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-14	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-141	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-142	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-143	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-144	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-145	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-146	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-147/PCB-149	UF	0.000207	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-148	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-15	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-150	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-152	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-153/PCB-168	UF	0.000207	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-154	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-155	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-156/PCB-157	UF	0.000207	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-158	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-159	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-16	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-160	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-161	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-162	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-164	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-165	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-167	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-169	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-17	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-170	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-171/PCB-173	UF	0.000207	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-172	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-174	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-175	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-176	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-177	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-178	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-179	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-18/PCB-30	UF	0.000207	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-180/PCB-193	UF	0.000207	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-181	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-182	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-183/PCB-185	UF	0.000207	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-184	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-186	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-187	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-188	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-189	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-19	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-190	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-191	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-192	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation



Field Sample ID	Sample Date	Lab Method	Parameter Name	Field Preparation Code	Report Result	Report Units	Lab Qualifier	EPA MQL (ug/L)	Reported Value per Part II Section A of NM0028355	NM0028355 May 2015 Permit	NM WQS 20.6.4.900 NMAC Section J	Form 2C	Notes/Comments
NP051-19-181618	06/18/2019	EPA:1668C	PCB-194	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-195	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-196	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-197/PCB-200	UF	0.000207	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-198/PCB-199	UF	0.000207	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-2	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-20/PCB-28	UF	0.000207	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-201	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-202	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-203	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-204	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-205	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-206	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-207	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-208	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-209	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-21/PCB-33	UF	0.000207	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-22	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-23	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-24	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-25	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-26/PCB-29	UF	0.000207	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-27	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-3	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-31	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-32	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-34	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-35	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-36	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-37	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-38	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-39	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-4	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-40/PCB-71	UF	0.000207	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-41	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-42	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-43	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-44/PCB-47/PCB-65	UF	0.00031	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-45/PCB-51	UF	0.000207	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-46	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-48	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-49/PCB-69	UF	0.000207	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-5	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-50/PCB-53	UF	0.000207	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-52	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-54	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-55	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-56	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-57	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-58	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-59/PCB-62/PCB-75	UF	0.00031	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-6	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-60	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-61/PCB-70/PCB-74/PCB-76	UF	0.000413	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-63	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation

Field Sample ID	Sample Date	Lab Method	Parameter Name	Field Preparation Code	Report Result	Report Units	Lab Qualifier	EPA MQL (ug/L)	Reported Value per Part II Section A of NM0028355	NM0028355 May 2015 Permit	NM WQS 20.6.4.900 NMAC Section J	Form 2C	Notes/Comments
NP051-19-181618	06/18/2019	EPA:1668C	PCB-64	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-66	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-67	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-68	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-7	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-72	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-73	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-77	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-78	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-79	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-8	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-80	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-81	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-82	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-83	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-84	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-85/PCB-116/PCB-117	UF	0.00031	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-86/87/97/109/119/125	UF	0.00062	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-88/PCB-91	UF	0.000207	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-89	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-9	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-90/PCB-101/PCB-113	UF	0.00031	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-92	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-93/PCB-100	UF	0.000207	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-94	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-95	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-96	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-98/PCB-102	UF	0.000207	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	PCB-99	UF	0.000103	ug/L	U	0.00064					Applied to Total PCB Calculation
NP051-19-181618	06/18/2019	EPA:1668C	Total decaCB	UF	0	ug/L	U	0.00064					
NP051-19-181618	06/18/2019	EPA:1668C	Total diCB	UF	0	ug/L	U	0.00064					
NP051-19-181618	06/18/2019	EPA:1668C	Total heptaCB	UF	0	ug/L	U	0.00064					
NP051-19-181618	06/18/2019	EPA:1668C	Total hexaCB	UF	0	ug/L	U	0.00064					
NP051-19-181618	06/18/2019	EPA:1668C	Total monoCB	UF	0	ug/L	U	0.00064					
NP051-19-181618	06/18/2019	EPA:1668C	Total nonaCB	UF	0	ug/L	U	0.00064					
NP051-19-181618	06/18/2019	EPA:1668C	Total octaCB	UF	0	ug/L	U	0.00064					
<b>NP051-19-181618</b>	<b>06/18/2019</b>	<b>EPA:1668C_CALC</b>	<b>Total PCB</b>	<b>UF</b>	<b>0</b>	<b>ug/L</b>	<b>U</b>	<b>0.00064</b>	<b>NA</b>	<b>X</b>	<b>X</b>		<b>CALCULATED. Not reported on June DMR. Term Reporting will be Sept DMR.</b>
NP051-19-181618	06/18/2019	EPA:1668C	Total pentaCB	UF	0	ug/L	U	0.00064					
NP051-19-181618	06/18/2019	EPA:1668C	Total tetraCB	UF	0	ug/L	U	0.00064					
NP051-19-181618	06/18/2019	EPA:1668C	Total triCB	UF	0	ug/L	U	0.00064					
NP051-19-181609	06/18/2019	EPA:608.3	Aldrin	UF	0.00747	ug/L	U	0.01			X	X	
NP051-19-181609	06/18/2019	EPA:608.3	BHC[alpha-]	UF	0.00747	ug/L	U	0.05			X	X	
NP051-19-181609	06/18/2019	EPA:608.3	BHC[beta-]	UF	0.00747	ug/L	U	0.05			X	X	
NP051-19-181609	06/18/2019	EPA:608.3	BHC[delta-]	UF	0.00747	ug/L	U					X	
NP051-19-181609	06/18/2019	EPA:608.3	BHC[gamma-]	UF	0.00747	ug/L	U	0.05			X	X	
NP051-19-181609	06/18/2019	EPA:608.3	Chlordane(alpha/gamma)	UF	0.086	ug/L	U	0.2			X	X	
NP051-19-181609	06/18/2019	EPA:608.3	DDD[4,4'-]	UF	0.0112	ug/L	U	0.02			X	X	
NP051-19-181609	06/18/2019	EPA:608.3	DDE[4,4'-]	UF	0.0112	ug/L	U	0.02			X	X	
NP051-19-181609	06/18/2019	EPA:608.3	DDT[4,4'-]	UF	0.0112	ug/L	U	0.02			X	X	
<b>RESULT PENDING</b>	<b>06/18/2019</b>		<b>Diazinon</b>	<b>UF</b>							<b>X</b>		<b>RESULT PENDING. Analytical Data will be provided in July DMR.</b>
NP051-19-181609	06/18/2019	EPA:608.3	Dieldrin	UF	0.0112	ug/L	U	0.02			X	X	
NP051-19-181609	06/18/2019	EPA:608.3	Endosulfan I	UF	0.00747	ug/L	U	0.01			X	X	
NP051-19-181609	06/18/2019	EPA:608.3	Endosulfan II	UF	0.0112	ug/L	U	0.02			X	X	
NP051-19-181609	06/18/2019	EPA:608.3	Endosulfan Sulfate	UF	0.0112	ug/L	U	0.02			X	X	
NP051-19-181609	06/18/2019	EPA:608.3	Endrin	UF	0.0112	ug/L	U	0.02			X	X	

Field Sample ID	Sample Date	Lab Method	Parameter Name	Field Preparation Code	Report Result	Report Units	Lab Qualifier	EPA MQL (ug/L)	Reported Value per Part II Section A of NM0028355	NM0028355 May 2015 Permit	NM WQS 20.6.4.900 NMAC Section J	Form 2C	Notes/Comments
NP051-19-181609	06/18/2019	EPA:608.3	Endrin Aldehyde	UF	0.00747	ug/L	U	0.1			X	X	
NP051-19-181609	06/18/2019	EPA:608.3	Heptachlor	UF	0.00747	ug/L	U	0.01			X	X	
NP051-19-181609	06/18/2019	EPA:608.3	Heptachlor Epoxide	UF	0.00747	ug/L	U	0.01			X	X	
NP051-19-181609	06/18/2019	EPA:608.3	Toxaphene (Technical Grade)	UF	0.169	ug/L	U	0.3			X	X	
<b>NP051-19-181609</b>	<b>06/18/2019</b>	<b>EPA:900_CALC</b>	<b>Adjusted Gross Alpha</b>	<b>UF</b>	<b>-0.659</b>	<b>pCi/L</b>			<b>NA</b>	<b>X</b>	<b>X</b>		<b>CALCULATED. Not reported on June DMR. Term Reporting will be Sept DMR.</b>
NP051-19-181609	06/18/2019	EPA:900	Gross alpha	UF	2.22	pCi/L						X	
NP051-19-181609	06/18/2019	EPA:900	Gross beta	UF	14.5	pCi/L						X	
NP051-19-181578	06/18/2019	EPA:903.1	Radium-226	UF	0.165	pCi/L	U					X	
NP051-19-181609	06/18/2019	EPA:903.1	Radium-226	UF	0	pCi/L	U					X	
NP051-19-181578	06/18/2019	EPA:904	Radium-226 and Radium-228	UF	0.484	pCi/L	U	0	X	X	X	X	
NP051-19-181609	06/18/2019	EPA:904	Radium-226 and Radium-228	UF	-0.58	pCi/L	U	0	X	X	X	X	
NP051-19-182717	06/18/2019	EPA:905.0	Strontium-90	UF	0.26	pCi/L	U				X		
NP051-19-182717	06/18/2019	EPA:906.0	Tritium	UF	4460	pCi/L					X		
NP051-19-182855	06/18/2019	ATSM D7065-06	Nonphenol	UF	5	ug/L	U				X		
NP051-19-181609	06/18/2019	EPA:625.1	Acenaphthene	UF	0.300	ug/L	U	10			X	X	
NP051-19-181609	06/18/2019	EPA:625.1	Acenaphthylene	UF	0.300	ug/L	U					X	
NP051-19-181609	06/18/2019	EPA:625.1	Anthracene	UF	0.300	ug/L	U	10			X	X	
NP051-19-181609	06/18/2019	EPA:625.1	Benzidine	UF	3.90	ug/L	U	50			X	X	
NP051-19-181609	06/18/2019	EPA:625.1	Benzo(a)anthracene	UF	0.300	ug/L	U	5			X	X	
NP051-19-181609	06/18/2019	EPA:625.1	Benzo(a)pyrene	UF	0.300	ug/L	U	5			X	X	
NP051-19-181609	06/18/2019	EPA:625.1	Benzo(b)fluoranthene	UF	0.300	ug/L	U	5			X	X	
NP051-19-181609	06/18/2019	EPA:625.1	Benzo(g,h,i)perylene	UF	0.300	ug/L	U					X	
NP051-19-181609	06/18/2019	EPA:625.1	Benzo(k)fluoranthene	UF	0.300	ug/L	U	5			X	X	
NP051-19-181609	06/18/2019	EPA:625.1	Bis(2-chloroethoxy)methane	UF	3.00	ug/L	U					X	
NP051-19-181609	06/18/2019	EPA:625.1	Bis(2-chloroethyl)ether	UF	3.00	ug/L	U	10			X	X	
NP051-19-181609	06/18/2019	EPA:625.1	Bis(2-ethylhexyl)phthalate	UF	0.300	ug/L	U	10			X	X	
NP051-19-181609	06/18/2019	EPA:625.1	Bromophenyl-phenylether[4-]	UF	3.00	ug/L	U					X	
NP051-19-181609	06/18/2019	EPA:625.1	Butylbenzylphthalate	UF	0.300	ug/L	U	10			X	X	
NP051-19-181609	06/18/2019	EPA:625.1	Chloro-3-methylphenol[4-]	UF	3.00	ug/L	U					X	
NP051-19-181609	06/18/2019	EPA:625.1	Chloronaphthalene[2-]	UF	0.410	ug/L	U	10			X	X	
NP051-19-181609	06/18/2019	EPA:625.1	Chlorophenol[2-]	UF	3.00	ug/L	U	10			X	X	
NP051-19-181609	06/18/2019	EPA:625.1	Chlorophenyl-phenyl[4-] Ether	UF	3.00	ug/L	U					X	
NP051-19-181609	06/18/2019	EPA:625.1	Chrysene	UF	0.300	ug/L	U	5			X	X	
NP051-19-181609	06/18/2019	EPA:625.1	Dibenz(a,h)anthracene	UF	0.300	ug/L	U	5			X	X	
NP051-19-181609	06/18/2019	EPA:625.1	Dichlorobenzidine[3,3'-]	UF	3.00	ug/L	U	5			X	X	
NP051-19-181609	06/18/2019	EPA:625.1	Dichlorophenol[2,4-]	UF	3.00	ug/L	U	10			X	X	
NP051-19-181609	06/18/2019	EPA:625.1	Diethylphthalate	UF	0.300	ug/L	U	10			X	X	
NP051-19-181609	06/18/2019	EPA:625.1	Dimethyl Phthalate	UF	0.300	ug/L	U	10			X	X	
NP051-19-181609	06/18/2019	EPA:625.1	Dimethylphenol[2,4-]	UF	3.00	ug/L	U				X	X	
NP051-19-181609	06/18/2019	EPA:625.1	Di-n-butylphthalate	UF	0.52	ug/L	J	10				X	Applied to TTO Calculation
NP051-19-181609	06/18/2019	EPA:625.1	Dinitro-2-methylphenol[4,6-]	UF	3.00	ug/L	U	50			X	X	
NP051-19-181609	06/18/2019	EPA:625.1	Dinitrophenol[2,4-]	UF	5.00	ug/L	U	50			X	X	
NP051-19-181609	06/18/2019	EPA:625.1	Dinitrotoluene[2,4-]	UF	3.00	ug/L	U	10				X	
NP051-19-181609	06/18/2019	EPA:625.1	Dinitrotoluene[2,6-]	UF	3.00	ug/L	U					X	
NP051-19-181609	06/18/2019	EPA:625.1	Di-n-octylphthalate	UF	0.300	ug/L	U					X	
NP051-19-181609	06/18/2019	EPA:625.1	Diphenylamine	UF	3.00	ug/L	U	20			X	X	
NP051-19-181609	06/18/2019	EPA:625.1	Diphenylhydrazine[1,2-]	UF	3.00	ug/L	U	20			X	X	
NP051-19-181609	06/18/2019	EPA:625.1	Fluoranthene	UF	0.300	ug/L	U	10			X	X	
NP051-19-181609	06/18/2019	EPA:625.1	Fluorene	UF	0.300	ug/L	U	10			X	X	
NP051-19-181609	06/18/2019	EPA:625.1	Hexachlorobenzene	UF	3.00	ug/L	U	5			X	X	
NP051-19-181609	06/18/2019	EPA:625.1	Hexachlorobutadiene	UF	3.00	ug/L	U	10			X	X	
NP051-19-181609	06/18/2019	EPA:625.1	Hexachlorocyclopentadiene	UF	3.00	ug/L	U	10			X	X	
NP051-19-181609	06/18/2019	EPA:625.1	Hexachloroethane	UF	3.00	ug/L	U	20			X	X	
NP051-19-181609	06/18/2019	EPA:625.1	Indeno(1,2,3-cd)pyrene	UF	0.300	ug/L	U	5			X	X	
NP051-19-181609	06/18/2019	EPA:625.1	Isophorone	UF	3.50	ug/L	U	10			X	X	



Field Sample ID	Sample Date	Lab Method	Parameter Name	Field Preparation Code	Report Result	Report Units	Lab Qualifier	EPA MQL (ug/L)	Reported Value per Part II Section A of NM0028355	NM0028355 May 2015 Permit	NM WQS 20.6.4.900 NMAC Section J	Form 2C	Notes/Comments
NP051-19-181609	06/18/2019	EPA:625.1	Naphthalene	UF	0.300	ug/L	U					X	
NP051-19-181609	06/18/2019	EPA:625.1	Nitrobenzene	UF	3.00	ug/L	U	10			X	X	
NP051-19-181609	06/18/2019	EPA:625.1	Nitrophenol[2-]	UF	3.00	ug/L	U					X	
NP051-19-181609	06/18/2019	EPA:625.1	Nitrophenol[4-]	UF	3.00	ug/L	U					X	
NP051-19-181609	06/18/2019	EPA:625.1	Nitrosodimethylamine[N-]	UF	3.00	ug/L	U	50			X	X	
NP051-19-181609	06/18/2019	EPA:625.1	Nitroso-di-n-propylamine[N-]	UF	3.00	ug/L	U	20			X	X	
NP051-19-181609	06/18/2019	EPA:625.1	Oxybis(1-chloropropane)[2,2'-]	UF	3.00	ug/L	U	10			X	X	
NP051-19-181609	06/18/2019	EPA:625.1	Pentachlorophenol	UF	3.00	ug/L	U	5			X	X	
NP051-19-181609	06/18/2019	EPA:625.1	Phenanthrene	UF	0.300	ug/L	U					X	
NP051-19-181609	06/18/2019	EPA:625.1	Phenol	UF	3.00	ug/L	U	10			X	X	
NP051-19-181609	06/18/2019	EPA:625.1	Pyrene	UF	0.300	ug/L	U	10			X	X	
NP051-19-181609	06/18/2019	EPA:625.1	Trichlorobenzene[1,2,4-]	UF	3.00	ug/L	U	10			X	X	
NP051-19-181609	06/18/2019	EPA:625.1	Trichlorophenol[2,4,6-]	UF	3.00	ug/L	U	10			X	X	
NP051-19-181609	06/18/2019	EPA:624.1	Acrolein	UF	1.67	ug/L	U	50			X	X	
NP051-19-181609	06/18/2019	EPA:624.1	Acrylonitrile	UF	1.67	ug/L	U	20			X	X	
NP051-19-181609	06/18/2019	EPA:624.1	Benzene	UF	0.333	ug/L	U	10			X	X	
NP051-19-181609	06/18/2019	EPA:624.1	Bromodichloromethane	UF	0.92	ug/L	J	10			X	X	Applied to TTO Calculation
NP051-19-181609	06/18/2019	EPA:624.1	Bromoform	UF	0.333	ug/L	U	10			X	X	
NP051-19-181609	06/18/2019	EPA:624.1	Bromomethane	UF	0.337	ug/L	U	10			X	X	
NP051-19-181609	06/18/2019	EPA:624.1	Carbon Tetrachloride	UF	0.333	ug/L	U	2			X	X	
NP051-19-181609	06/18/2019	EPA:624.1	Chlorobenzene	UF	0.333	ug/L	U	10			X	X	
NP051-19-181609	06/18/2019	EPA:624.1	Chlorodibromomethane	UF	0.333	ug/L	U	10			X	X	
NP051-19-181609	06/18/2019	EPA:624.1	Chloroethane	UF	0.333	ug/L	U					X	
NP051-19-181609	06/18/2019	EPA:624.1	Chloroethyl vinyl ether[2-]	UF	1.67	ug/L	U					X	
NP051-19-181609	06/18/2019	EPA:624.1	Chloroform	UF	12	ug/L		50			X	X	Applied to TTO Calculation
NP051-19-181609	06/18/2019	EPA:624.1	Chloromethane	UF	0.333	ug/L	U					X	
NP051-19-181609	06/18/2019	EPA:624.1	Dichlorobenzene[1,2-]	UF	0.333	ug/L	U				X	X	
NP051-19-181609	06/18/2019	EPA:624.1	Dichlorobenzene[1,3-]	UF	0.333	ug/L	U				X	X	
NP051-19-181609	06/18/2019	EPA:624.1	Dichlorobenzene[1,4-]	UF	0.333	ug/L	U				X	X	
NP051-19-181609	06/18/2019	EPA:624.1	Dichloroethane[1,1-]	UF	0.333	ug/L	U	10				X	
NP051-19-181609	06/18/2019	EPA:624.1	Dichloroethane[1,2-]	UF	0.333	ug/L	U				X	X	
NP051-19-181609	06/18/2019	EPA:624.1	Dichloroethene[1,1-]	UF	0.333	ug/L	U	10			X	X	
NP051-19-181609	06/18/2019	EPA:624.1	Dichloroethene[trans-1,2-]	UF	0.333	ug/L	U	10			X	X	
NP051-19-181609	06/18/2019	EPA:624.1	Dichloropropane[1,2-]	UF	0.333	ug/L	U	10			X	X	
NP051-19-181609	06/18/2019	EPA:624.1	Dichloropropene[cis-1,3-]	UF	0.333	ug/L	U	10			X	X	
NP051-19-181609	06/18/2019	EPA:624.1	Dichloropropene[trans-1,3-]	UF	0.333	ug/L	U	10			X	X	
NP051-19-181609	06/18/2019	EPA:624.1	Ethylbenzene	UF	0.333	ug/L	U	10			X	X	
NP051-19-181609	06/18/2019	EPA:624.1	Methylene Chloride	UF	1.67	ug/L	U	20			X	X	
NP051-19-181609	06/18/2019	EPA:624.1	Oxybis(1-chloropropane)[2,2'-]	UF	1.67	ug/L	U				X	X	
NP051-19-181609	06/18/2019	EPA:624.1	Tetrachloroethane[1,1,2,2-]	UF	0.333	ug/L	U	10			X	X	
NP051-19-181609	06/18/2019	EPA:624.1	Tetrachloroethene	UF	0.333	ug/L	U	10			X	X	
NP051-19-181609	06/18/2019	EPA:624.1	Toluene	UF	0.333	ug/L	U	10			X	X	
NP051-19-181609	06/18/2019	EPA:624.1	Trichloroethane[1,1,1-]	UF	0.333	ug/L	U				X	X	
NP051-19-181609	06/18/2019	EPA:624.1	Trichloroethane[1,1,2-]	UF	0.333	ug/L	U	10			X	X	
NP051-19-181609	06/18/2019	EPA:624.1	Trichloroethene	UF	0.333	ug/L	U	10			X	X	
NP051-19-181609	06/18/2019	EPA:624.1	Vinyl Chloride	UF	0.333	ug/L	U	10			X	X	
<b>CALCULATED</b>	<b>06/18/2019</b>	<b>EPA:624.1/625.1</b>	<b>Total Toxic Organics</b>	<b>UF</b>	<b>13.440</b>	<b>ug/L</b>	<b>U</b>		<b>13.4</b>	<b>X</b>			<b>CALCULATED</b>
<b>NOT REQUIRED</b>	<b>06/18/2019</b>		<b>Methylmercury</b>	<b>UF</b>							<b>X</b>		<b>NOT REQUIRED. Only Applicable to Fish Tissue</b>

# Industrial and Sanitary Outfalls

## 2019 NPDES Permit Re-Application

### Outfall 03A199 Fact Sheet

Utilities and Infrastructure (U&I)  
Laboratory Data Communications Center (LDCC) Cooling Towers



## Revision Log

<u>Revision No.</u>	<u>Date</u>	<u>Page Nos.</u>	<u>Change Description</u>
<u>0</u>	<u>3/18/19</u>	<u>NAP[]</u>	<u>Original</u>
<u>1</u>	<u>7/31/2019</u>	<u>Page 6 of 8, Table 3</u>	<u>Updated the chemical information for C358 and R-630 for the LDCC Cooling Towers. Deleted WEST C-825 because the chemical is no longer in use.</u>
		<u>Page 7 of 8, Table 5</u>	<u>Updated the potential chemicals associated with the LDCC Cooling Towers to match Table 3.</u>
		<u>Attachment C, C-3</u>	<u>Revised the Title of photograph NPDES-03A199-18-005.</u>
		<u>Attachment D, page D3</u>	<u>Revised the summary lines for pH to include "pH"</u>
		<u>Attachment D, page D4</u>	<u>Revised the summary lines for Total Residual Chlorine to include "Total Residual Chlorine"</u>
		<u>Attachment D, page D5</u>	<u>Revised the summary lines for Aluminum to say "Aluminum, Total"</u>
		<u>Attachment D, page D5 and D6</u>	<u>Revised the summary lines for Copper to say "Copper, Dissolved"</u>
		<u>Attachment D, page D6</u>	<u>Revised Gross Alpha to say "Adjusted Gross Alpha"</u>
		<u>Attachment E, page 178</u>	<u>Replaced the MSDS for WEST C-358P Inhibitor with the current SDS.</u>
		<u>Attachment E, page 183</u>	<u>Deleted the MSDS for WEST C-825 because the chemical is no longer used.</u>
		<u>Attachment E, page E-189</u>	<u>Replaced the MSDS for WEST R-650 with the current SDS.</u>
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-



The water treatment processes identified in Table 2 utilize chemicals to monitor the water quality in the cooling tower, control corrosion, limit biological growth, and de-chlorinate blowdown prior to discharge. Table 3 provides a list of the chemicals used to treat the water in the cooling towers.

<b>Table 3</b>				
<b>List of Treatment Chemicals used in the Operations that Contribute to Outfall 03A199</b>				
<b>Source</b>	<b>Chemical Name</b>	<b>Reason for Use</b>	<b>Toxic Pollutant and/or Hazardous Substances Table 2C-3 or 2C-4</b>	
LDCC Cooling Towers	Bromicide Tablets	Biocide	Bromo-chloro-5,5-dimethyl hydantoin (chlorine source)	2C-4
	HACH 203832	Sulfuric Acid Solution 19.2N	Sulfuric Acid	2C-4
	HACH 1407028	Free Chlorine Reagent	Sodium Phosphate Dibasic	2C-4
			EDTA	2C-4
	HACH 2076053	Molybdovanadate Reagent	Sulfuric Acid	2C-4
	HACH 2105669	Total Chlorine Reagent	Sodium Phosphate Dibasic	2C-4
	HACH 2263411	Total Chlorine Indicator	Sulfuric Acid	2C-4
	HACH 2263511	Total Chlorine Buffer Solution	Sodium Hydroxide	2C-4
			EDTA	2C-4
	HACH 2297255	Compound for Free and Total Chlorine Analyzers	NA	NA
	HACH 2314011	Free Chlorine Indicator Solution for CL-17 Analyzer	Toluene	2C-4
	HACH 2314111	Free Chlorine Buffer for CL-117 Analyzer	NA	NA
	HACH 2756549	pH Storage Solution	Sodium Phosphate Dibasic	2C-4
	WEST-C-358AP	Corrosion Inhibitor & Antiscalant	Sodium Potassium Hydroxide	2C-4
	WEST-C-825	pH control (neutralization)	Sodium Bisulfite	2C-4
WEST-R-630	Dechlorination	Sodium Metabisulfite	2C-4	
Bright Dyes FLT Yellow/Green Liquid	Water Line & Drain Tracing Dye	NA	NA	
		NA	NA	
Bright Dyes FLT Yellow/Green Tablet	Water Line & Drain Tracing Dye	NA	NA	
		NA	NA	

EDTA = Ethylene Diamine Tetraacetic Acid; NA = not applicable; LDCC = Laboratory Data Communications Center

### 2.3 Discharge Rate and Frequency [II.C]

The discharge rates and frequencies for Outfall 03A199 are provided in Table 4.

<b>Table 4</b>							
<b>Flow Rates and Frequencies for Discharges to Outfall 03A199</b>							
<b>Source <sup>a</sup></b>	<b>Frequency</b>		<b>Flow Rates and Volumes</b>				
	<b>Days/Week</b>	<b>Months</b>	<b>Average (MGD)</b>	<b>Maximum (MGD)</b>	<b>Average Volume (GPD)</b>	<b>Maximum Volume (GPD)</b>	<b>Duration (days)</b>
LDCC Cooling Towers	7	12	0.036	0.074	36,024	74,000	365

a. Calculated between October 2017 and September 2018.

GPD = gallons per day; MGD = million gallons per day; LDCC = Laboratory Data Communications Center

### 3.0 PRODUCTION [Section III]

Section III is not applicable to Outfall 03A199.

#### 4.0 IMPROVEMENTS [Section IV]

Section IV is not applicable to Outfall 03A199.

#### 5.0 INTAKE AND EFFLUENT CHARACTERISTICS [Section V]

##### 5.1 Analytical Data [V.A, B, and C]

The analytical results provided for the Outfall 03A199 Permit Reapplication on the Form 2C were provided from the following sources:

- Samples collected on August 15, 2018 and shipped to an independent laboratory for analysis.
- Field samples collected and analyzed on August 15, 2018 for temperature, residual chlorine, and pH.
- Field samples collected and analyzed on January 16, 2019 for sulfite.
- Discharge monitoring report summary for Outfall 03A199 from October 2014 to September 2018 (Attachment D).
- Hardness = 79.1 mg/L (CaCO<sub>3</sub>)

##### 5.2 Potential Pollutants [V.D]

The treatment chemicals associated with the LDCC Cooling Tower water treatment system, the use of potable water that has been conditioned in the water treatment system constitutes the pollutant load of the discharge to Outfall 03A199. Table 5 identifies the Table 2C-3 and 2C-4 pollutants by discharge source. It also identifies those pollutants (if any) that were detected in the analytical results from the samples collected for the 2019 Permit Renewal Application.

Table 5 Potential Pollutants by Source for Outfall 03A199			
Source	Pollutant		Analytical Data Results from Outfall 03A199 <sup>a</sup>
LDCC Cooling Towers	EDTA	2C-4	pH = 7.3 – 8.6 S.U.
	<del>potassium hydroxide</del>	<del>2C-4</del>	<del>pH = 7.3 – 8.6 S.U.</del>
	sodium bisulfite	2C-4	Sulfite = 9.1 mg/L
	sodium hydroxide	2C-4	pH = 7.3 – 8.6 S.U.
	sodium phosphate dibasic	2C-4	Total phosphorus = 1.58
	sulfuric acid	2C-4	pH = 7.3 – 8.6 S.U.
	toluene	2C-4	Not Detected (VOC)
	chlorine	2C-4	Residual chlorine = 0
Potable Makeup Water	chlorine	2C-4	Total residual chlorine = 0

a. Results are from the representative sample collected at Outfall 03A199 on August 15, 2018.

EDTA = Ethylene Diamine Tetraacetic Acid; LDCC = Laboratory Data Communications Center; S.U. = standard units; VOC = volatile organic compound

The safety data sheets associated with the chemicals used to treat water at the LDCC are provided in Attachment E.

#### 6.0 POTENTIAL DISCHARGES NOT COVERED BY ANALYSIS [Section VI]

Section VI is not applicable to Outfall 03A199.

#### 7.0 BIOLOGICAL TOXICITY TESTING DATA [Section VII]

Section VII is not applicable to Outfall 03A199.

#### 8.0 CONTRACT ANALYSIS INFORMATION [Section VIII]

Samples from the LDCC blowdown were collected on August 15, 2018 for the Form 2C constituents required by the permit application forms. These samples were submitted to independent laboratories as summarized in Table 6.





Photograph - NPDES-03A199-18-005  
LDCC Corrosion Inhibitor and pH Adjustment Chemical Feed Tanks



Photograph - NPDES-03A199-18-006  
LDCC Neutralization Tank

OUTFALL No.	TA - Bldg.	Year	Monitoring Period	Parameter	Quantity or Loading			Quality or Concentration								
					Average	Maximum	Units	Minimum	Average	Maximum	Units	Permit Limit	Units	Number of Samples	Frequency	Notes
03A199	TA3-1837	2017	Apr	pH				7.7	****	7.8	S.U.	6.6 - 8.8	S.U.	4.0	Weekly	Required by Permit
03A199	TA3-1837	2017	May	pH				7.7	****	7.9	S.U.	6.6 - 8.8	S.U.	5.0	Weekly	Required by Permit
03A199	TA3-1837	2017	Jun	pH				7.8	****	7.8	S.U.	6.6 - 8.8	S.U.	4.0	Weekly	Required by Permit
03A199	TA3-1837	2017	Jul	pH				7.7	****	7.9	S.U.	6.6 - 8.8	S.U.	4.0	Weekly	Required by Permit
03A199	TA3-1837	2017	Aug	pH				7.9	****	8.0	S.U.	6.6 - 8.8	S.U.	5.0	Weekly	Required by Permit
03A199	TA3-1837	2017	Sept	pH				7.9	****	8.0	S.U.	6.6 - 8.8	S.U.	4.0	Weekly	Required by Permit
03A199	TA3-1837	2017	Oct	pH				7.7	****	8.4	S.U.	6.6 - 8.8	S.U.	4.0	Weekly	Required by Permit
03A199	TA3-1837	2017	Nov	pH				7.3	****	7.9	S.U.	6.6 - 8.8	S.U.	5.0	Weekly	Required by Permit
03A199	TA3-1837	2017	Dec	pH				7.5	****	7.8	S.U.	6.6 - 8.8	S.U.	4.0	Weekly	Required by Permit
03A199	TA3-1837	2018	Jan	pH				7.6	****	7.9	S.U.	6.6 - 8.8	S.U.	5.0	Weekly	Required by Permit
03A199	TA3-1837	2018	Feb	pH				7.7	****	7.8	S.U.	6.6 - 8.8	S.U.	4.0	Weekly	Required by Permit
03A199	TA3-1837	2018	Mar	pH				7.6	****	7.9	S.U.	6.6 - 8.8	S.U.	4.0	Weekly	Required by Permit
03A199	TA3-1837	2018	Apr	pH				7.5	****	8.3	S.U.	6.6 - 8.8	S.U.	4.0	Weekly	Required by Permit
03A199	TA3-1837	2018	May	pH				7.3	****	7.7	S.U.	6.6 - 8.8	S.U.	5.0	Weekly	Required by Permit
03A199	TA3-1837	2018	Jun	pH				7.3	****	7.7	S.U.	6.6 - 8.8	S.U.	4.0	Weekly	Required by Permit
03A199	TA3-1837	2018	Jul	pH				7.7	****	7.9	S.U.	6.6 - 8.8	S.U.	4.0	Weekly	Required by Permit
03A199	TA3-1837	2018	Aug	pH				7.9	****	8.1	S.U.	6.6 - 8.8	S.U.	5.0	Weekly	Required by Permit
03A199	TA3-1837	2018	Sept	pH				7.7	****	8.1	S.U.	6.6 - 8.8	S.U.	4.0	Weekly	Required by Permit
				<u>pH</u>				<b>Minimum</b>	<b>7.3</b>					<b>209</b>		
				<u>pH</u>				<b>Maximum 30 Day Average</b>	<b>8.45</b>					<b>209</b>		
				<u>pH</u>				<b>Maximum</b>		<b>8.6</b>	<b>S.U.</b>			<b>209</b>		
03A199	TA3-1837	2014	Oct	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	5.0	Weekly	Required by Permit
03A199	TA3-1837	2014	Nov	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Required by Permit
03A199	TA3-1837	2014	Dec	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	5.0	Weekly	Required by Permit
03A199	TA3-1837	2015	Jan	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Required by Permit
03A199	TA3-1837	2015	Feb	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Required by Permit
03A199	TA3-1837	2015	Mar	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Required by Permit
03A199	TA3-1837	2015	Apr	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	5.0	Weekly	Required by Permit
03A199	TA3-1837	2015	May	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Required by Permit
03A199	TA3-1837	2015	Jun	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Required by Permit
03A199	TA3-1837	2015	Jul	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	5.0	Weekly	Required by Permit
03A199	TA3-1837	2015	Aug	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Required by Permit
03A199	TA3-1837	2015	Sept	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	5.0	Weekly	Required by Permit
03A199	TA3-1837	2015	Oct	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Required by Permit
03A199	TA3-1837	2015	Nov	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Required by Permit
03A199	TA3-1837	2015	Dec	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	5.0	Weekly	Required by Permit
03A199	TA3-1837	2016	Jan	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Required by Permit
03A199	TA3-1837	2016	Feb	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Required by Permit
03A199	TA3-1837	2016	Mar	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	5.0	Weekly	Required by Permit
03A199	TA3-1837	2016	Apr	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Required by Permit
03A199	TA3-1837	2016	May	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	5.0	Weekly	Required by Permit

OUTFALL No.	TA - Bldg.	Year	Monitoring Period	Parameter	Quantity or Loading			Quality or Concentration								
					Average	Maximum	Units	Minimum	Average	Maximum	Units	Permit Limit	Units	Number of Samples	Frequency	Notes
03A199	TA3-1837	2016	Jun	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Required by Permit
03A199	TA3-1837	2016	Jul	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Required by Permit
03A199	TA3-1837	2016	Aug	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	5.0	Weekly	Required by Permit
03A199	TA3-1837	2016	Sept	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Required by Permit
03A199	TA3-1837	2016	Oct	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Required by Permit
03A199	TA3-1837	2016	Nov	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	5.0	Weekly	Required by Permit
03A199	TA3-1837	2016	Dec	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Required by Permit
03A199	TA3-1837	2017	Jan	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Required by Permit
03A199	TA3-1837	2017	Feb	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Required by Permit
03A199	TA3-1837	2017	Mar	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	5.0	Weekly	Required by Permit
03A199	TA3-1837	2017	Apr	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Required by Permit
03A199	TA3-1837	2017	May	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	5.0	Weekly	Required by Permit
03A199	TA3-1837	2017	Jun	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Required by Permit
03A199	TA3-1837	2017	Jul	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Required by Permit
03A199	TA3-1837	2017	Aug	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	5.0	Weekly	Required by Permit
03A199	TA3-1837	2017	Sept	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Required by Permit
03A199	TA3-1837	2017	Oct	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Required by Permit
03A199	TA3-1837	2017	Nov	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	5.0	Weekly	Required by Permit
03A199	TA3-1837	2017	Dec	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Required by Permit
03A199	TA3-1837	2018	Jan	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	5.0	Weekly	Required by Permit
03A199	TA3-1837	2018	Feb	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Required by Permit
03A199	TA3-1837	2018	Mar	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Required by Permit
03A199	TA3-1837	2018	Apr	Total Residual Chlorine				****	****	0.98	mg/L	0.011	mg/L	4.0	Weekly	Required by Permit
03A199	TA3-1837	2018	May	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	5.0	Weekly	Required by Permit
03A199	TA3-1837	2018	Jun	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Required by Permit
03A199	TA3-1837	2018	Jul	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Required by Permit
03A199	TA3-1837	2018	Aug	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	5.0	Weekly	Required by Permit
03A199	TA3-1837	2018	Sept	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Required by Permit
<b>Total Residual Chlorine</b>					<b>Daily Average</b>				<b>0.02</b>		<b>mg/L</b>			<b>209</b>		
<b>Total Residual Chlorine</b>					<b>Maximum 30 Day Average</b>				<b>0.98</b>		<b>mg/L</b>			<b>209</b>		
<b>Total Residual Chlorine</b>					<b>Daily Maximum</b>					<b>0.98</b>	<b>mg/L</b>			<b>209</b>		
03A199	TA3-1837	2014	Dec	Total Suspended Solids				****	1	1	mg/L	30 - 100	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2015	Mar	Total Suspended Solids				****	1	1	mg/L	30 - 100	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2015	Jun	Total Suspended Solids				****	1	1	mg/L	30 - 100	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2015	Sept	Total Suspended Solids				****	3.1	3.1	mg/L	30 - 100	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2015	Dec	Total Suspended Solids				****	<0.57	<0.57	mg/L	30 - 100	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2016	Mar	Total Suspended Solids				****	1.17	1.17	mg/L	30 - 100	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2016	Jun	Total Suspended Solids				****	1.1	1.1	mg/L	30 - 100	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2016	Sept	Total Suspended Solids				****	<5.7	<5.7	mg/L	30 - 100	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2016	Dec	Total Suspended Solids				****	1.22	1.22	mg/L	30 - 100	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2017	Mar	Total Suspended Solids				****	4.7	4.7	mg/L	30 - 100	mg/L	1	Quarterly	Required by Permit

OUTFALL No.	TA - Bldg.	Year	Monitoring Period	Parameter	Quantity or Loading			Quality or Concentration								
					Average	Maximum	Units	Minimum	Average	Maximum	Units	Permit Limit	Units	Number of Samples	Frequency	Notes
03A199	TA3-1837	2017	Jun	Total Suspended Solids				****	0.7	0.7	mg/L	30 - 100	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2017	Sept	Total Suspended Solids				****	1.5	1.5	mg/L	30 - 100	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2017	Dec	Total Suspended Solids				****	0.957	0.957	mg/L	30 - 100	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2018	Mar	Total Suspended Solids				****	1	1	mg/L	30 - 100	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2018	Jun	Total Suspended Solids				****	1	1	mg/L	30 - 100	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2018	Sept	Total Suspended Solids				****	1.74	1.8	mg/L	30 - 100	mg/L	2	Quarterly	Required by Permit
<b>Total Suspended Solids</b>					<b>Daily Average</b>				<b>1.5</b>		<b>mg/L</b>			<b>17</b>		
<b>Total Suspended Solids</b>					<b>Maximum 30 Day Average</b>				<b>4.7</b>		<b>mg/L</b>			<b>17</b>		
<b>Total Suspended Solids</b>					<b>Maximum</b>					<b>4.7</b>	<b>mg/L</b>			<b>17</b>		
03A199	TA3-1837	2014	Dec	Phosphorus, Total				****	1.39	1.39	mg/L	20 - 40	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2015	Mar	Phosphorus, Total				****	1.58	1.58	mg/L	20 - 40	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2015	Jun	Phosphorus, Total				****	1.46	1.46	mg/L	20 - 40	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2015	Sept	Phosphorus, Total				****	1.29	1.29	mg/L	20 - 40	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2015	Dec	Phosphorus, Total				****	1.41	1.41	mg/L	20 - 40	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2016	Mar	Phosphorus, Total				****	0.428	0.428	mg/L	20 - 40	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2016	Jun	Phosphorus, Total				****	0.256	0.256	mg/L	20 - 40	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2016	Sept	Phosphorus, Total				****	0.455	0.455	mg/L	20 - 40	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2016	Dec	Phosphorus, Total				****	0.583	0.583	mg/L	20 - 40	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2017	Mar	Phosphorus, Total				****	0.634	0.634	mg/L	20 - 40	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2017	Jun	Phosphorus, Total				****	0.348	0.348	mg/L	20 - 40	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2017	Sept	Phosphorus, Total				****	0.409	0.0409	mg/L	20 - 40	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2017	Dec	Phosphorus, Total				****	0.339	0.339	mg/L	20 - 40	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2018	Mar	Phosphorus, Total				****	0.338	0.338	mg/L	20 - 40	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2018	Jun	Phosphorus, Total				****	0.369	0.369	mg/L	20 - 40	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2018	Sept	Phosphorus, Total				****	0.293	0.319	mg/L	20 - 40	mg/L	2	Quarterly	Required by Permit
<b>Phosphorus, Total</b>					<b>Daily Average</b>				<b>0.7</b>		<b>mg/L</b>			<b>17</b>		
<b>Phosphorus, Total</b>					<b>Maximum 30 Day Average</b>				<b>1.58</b>		<b>mg/L</b>			<b>17</b>		
<b>Phosphorus, Total</b>					<b>Maximum</b>					<b>1.58</b>	<b>mg/L</b>			<b>17</b>		
03A199	TA3-1837	2015	Sept	Aluminum, Total				****	****	<0.015	mg/L	0.9889	mg/L	1	Yearly	Required by Permit
03A199	TA3-1837	2016	Sept	Aluminum, Total				****	****	<0.015	mg/L	0.9889	mg/L	1	Yearly	Required by Permit
03A199	TA3-1837	2017	Sept	Aluminum, Total				****	****	<0.0193	mg/L	0.9889	mg/L	1	Yearly	Required by Permit
03A199	TA3-1837	2018	Sept	Aluminum, Total				****	****	<0.0193	mg/L	0.9889	mg/L	1	Yearly	Required by Permit
<b>Aluminum, Total</b>					<b>Daily Average</b>						<b>mg/L</b>			<b>4</b>		
<b>Aluminum, Total</b>					<b>Maximum 30 Day Average</b>						<b>mg/L</b>			<b>4</b>		
<b>Aluminum, Total</b>					<b>Maximum</b>					<b>0.00000</b>	<b>mg/L</b>			<b>4</b>		
03A199	TA3-1837	2015	Sept	Copper, Dissolved				****	****	0.00219	mg/L	0.0073	mg/L	1	Yearly	Required by Permit
03A199	TA3-1837	2016	Sept	Copper, Dissolved				****	****	0.00273	mg/L	0.0073	mg/L	1	Yearly	Required by Permit
03A199	TA3-1837	2017	Sept	Copper, Dissolved				****	****	0.00303	mg/L	0.0073	mg/L	1	Yearly	Required by Permit
03A199	TA3-1837	2018	Sept	Copper, Dissolved				****	****	0.00064	mg/L	0.0073	mg/L	1	Yearly	Required by Permit
<b>Copper, Dissolved</b>					<b>Daily Average</b>						<b>mg/L</b>			<b>4</b>		
<b>Copper, Dissolved</b>					<b>Maximum 30 Day Average</b>						<b>mg/L</b>			<b>4</b>		



OUTFALL No.	TA - Bldg.	Year	Monitoring Period	Parameter	Quantity or Loading			Quality or Concentration								
					Average	Maximum	Units	Minimum	Average	Maximum	Units	Permit Limit	Units	Number of Samples	Frequency	Notes
<b>Copper, Dissolved</b>					<b>Maximum</b>					<b>0.00303</b>	<b>mg/L</b>			<b>4</b>		
03A199	TA3-1837	2015	Sept	Mercury, Dissolved				****	****	<0.067	ug/L	0.77	ug/L	1	Yearly	Required by Permit
03A199	TA3-1837	2016	Sept	Mercury, Dissolved				****	****	<0.067	ug/L	0.77	ug/L	1	Yearly	Required by Permit
03A199	TA3-1837	2017	Sept	Mercury, Dissolved				****	****	<0.067	ug/L	0.77	ug/L	1	Yearly	Required by Permit
03A199	TA3-1837	2018	Sept	Mercury, Dissolved				****	****	<0.067	ug/L	0.77	ug/L	1	Yearly	Required by Permit
<b>Mercury, Dissolved</b>					<b>Daily Average</b>						<b>ug/L</b>			<b>4</b>		
<b>Mercury, Dissolved</b>					<b>Maximum 30 Day Average</b>						<b>ug/L</b>			<b>4</b>		
<b>Mercury, Dissolved</b>					<b>Maximum</b>					<b>0</b>	<b>ug/L</b>			<b>4</b>		
03A199	TA3-1837	2015	Sept	Mercury, Total				****	****	<0.067	ug/L	0.77	ug/L	1	Yearly	Required by Permit
03A199	TA3-1837	2016	Sept	Mercury, Total				****	****	<0.067	ug/L	0.77	ug/L	1	Yearly	Required by Permit
03A199	TA3-1837	2017	Sept	Mercury, Total				****	****	<0.067	ug/L	0.77	ug/L	1	Yearly	Required by Permit
03A199	TA3-1837	2018	Sept	Mercury, Total				****	****	<0.067	ug/L	0.77	ug/L	1	Yearly	Required by Permit
<b>Mercury, Total</b>					<b>Daily Average</b>						<b>ug/L</b>			<b>4</b>		
<b>Mercury, Total</b>					<b>Maximum 30 Day Average</b>						<b>ug/L</b>			<b>4</b>		
<b>Mercury, Total</b>					<b>Maximum</b>					<b>0</b>	<b>ug/L</b>			<b>4</b>		
03A199	TA3-1837	2015	Sept	Adjusted Gross Alpha				****	0	0	pCi/L	Required Monitoring	pCi/L	1	Term	Required by Permit
<b>Adjusted Gross Alpha</b>					<b>Daily Average</b>						<b>pCi/L</b>			<b>1</b>		
<b>Adjusted Gross Alpha</b>					<b>Maximum 30 Day Average</b>						<b>pCi/L</b>			<b>1</b>		
<b>Adjusted Gross Alpha</b>					<b>Maximum</b>					<b>0</b>	<b>pCi/L</b>			<b>1</b>		



C-358A



# SAFETY DATA SHEET

U.S. Water Services

**C-358A**

## 1 PRODUCT AND COMPANY IDENTIFICATION

**Product Identifier:** C-358A  
**SDS Number:** 3120  
**Revision Date:** 12/14/2018  
**Version:** 1  
**Product Use:** Cooling Water Treatment  
**Supplier Details:** U.S. Water Services  
12270 43rd St. NE  
St. Michael, MN 55376  
**Contact:** Non-emergency #: 866-663-7632  
**Email:** SDS@uswaterservices.com  
**Web:** www.uswaterservices.com

**EMERGENCY RESPONSE: (ChemTel)**  
**US & Canada: 800-255-3924**  
**International: +01-813-248-0585**

## 2 HAZARDS IDENTIFICATION

### Classification of the Substance or Mixture

#### GHS Classification in Accordance with 29 CFR 1910 (OSHA HCS):

Physical, Corrosive to Metals, 1  
Health, Acute toxicity, 4 Oral  
Health, Skin corrosion/irritation, 1  
Health, Acute toxicity, 4 Inhalation

### GHS Label Elements, Including Precautionary Statements

**GHS Signal Word:** **DANGER**

**GHS Hazard Pictograms:**



### GHS Hazard Statements:

H290 - May be corrosive to metals  
H302 - Harmful if swallowed  
H314 - Causes severe skin burns and eye damage  
H332 - Harmful if inhaled

### GHS Precautionary Statements:

P260 - Do not breathe dust/fume/gas/mist/vapours/spray.  
P264 - Wash ... thoroughly after handling.  
P280 - Wear protective gloves/protective clothing/eye protection/face protection.  
P301 + P330 + P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.  
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses,



# SAFETY DATA SHEET

U.S. Water Services

**C-358A**

present and easy to do. Continue rinsing.  
 P406 - Store in a corrosion resistant container with a resistant inner liner.

**Hazards not Otherwise Classified (HNOC) or not Covered by GHS**

PPE recommendation is advisory only and based on typical use conditions. An industrial hygienist or safety officer familiar with the specific situation of anticipated use must determine actual PPE required when using this product (29 CFR 1910.132)

### 3 COMPOSITION/INFORMATION OF INGREDIENTS

Chemical Ingredients		
CAS#	%	Chemical Name
1310-73-2	10-15%	Sodium hydroxide

### 4 FIRST AID MEASURES

**Inhalation:** Remove from contamination. If person has stopped breathing administer artificial respiration. Seek medical attention.

**Skin Contact:** Wash off with soap and plenty of water. Remove contaminated garments and wash or destroy. Seek medical attention if irritation develops. Consult a physician if irritation develops.

**Eye Contact:** Flush eyes with plenty of running water for several minutes. Seek medical attention.

**Ingestion:** If conscious, give plenty of water. If discomfort or other symptoms develop, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

**Most important symptoms & effects (acute & delayed):** Small burns may result from exposure

**Indication of need for immediate medical attention:** No data available

**Special treatment needs:** No data available

### 5 FIRE FIGHTING MEASURES

**Flash Point:** Does not Flash

**Autoignition Temp:** No data available

**LEL:** No data available

**UEL:** No data available

**Extinguishing Media:**

**Suitable:** Use extinguishing media suitable for surrounding fire.

**Unsuitable:** No information available

**Hazardous combustion products:** Hazardous decomposition products formed under fire conditions- Carbon oxides, and other hazardous compounds

**Unusual Fire or Explosion Hazards:** None known

**Special protective equipment/precautions:** Wear self-contained breathing apparatus



**SAFETY DATA SHEET**  
 U.S. Water Services

**C-358A**

**6 ACCIDENTAL RELEASE MEASURES**

**Personal Precautions, Protective equipment, emergency procedures:** Avoid contact with the material. See section 8 of SDS for PPE recommendations

**Environmental Precautions:** Keep runoff from entering drains or waterways

**Spill/Leak procedures:** Contain spill or leak. Dike area if necessary to prevent spill from spreading or entering sewers and waterways. Recover as much as possible then absorb remainder with inert material. Place into closed container for disposal.

**Regulatory Requirements:** Dispose of recovered material in accordance with all applicable state and federal regulations.

**7 HANDLING AND STORAGE**

**Handling Precautions:** Avoid contact with eyes, skin, or clothing. Do not taste or swallow. Do not inhale vapor or mist. Use with adequate ventilation. For industrial use only!

**Storage Requirements:** Keep away from children. Store in closed containers away from temperature extremes and incompatible materials. Store in properly labeled containers in accordance with all local, state and federal guidelines.

**8 EXPOSURE CONTROLS/PERSONAL PROTECTION**

**Engineering Controls:** Provide local exhaust ventilation as needed to control misting.

**Personal Protective Equipment:** HMIS PP, C | Safety Glasses, Gloves, Apron

Respiratory protection: Not required under normal use conditions. If needed use MSHA/NIOSH approved respirator. Seek professional advice prior to respirator selection and use. Follow all requirements of OSHA respirator regulations (29 CFR 1910.134) Safety Stations: Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area. General Hygiene: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, using the toilet, or applying cosmetics. PPE recommendation is advisory only and based on typical use conditions. An industrial hygienist or safety officer familiar with the specific situation of anticipated use must determine actual PPE required when using this product (29 CFR 1910.132)

**Exposure Limits:**

**Sodium hydroxide (CAS: 1310-73-2)**

PEL (Inhalation): 2 mg/m3 Ceiling (OSHA)

TLV (Inhalation): 2 mg/m3 Ceiling (ACGIH)

**9 PHYSICAL AND CHEMICAL PROPERTIES**

<b>Appearance:</b>	Yellow to Amber	<b>Odor:</b>	Mild
<b>Physical State:</b>	Liquid	<b>Solubility:</b>	Complete
<b>Odor Threshold:</b>	No data available	<b>Freezing/Melting Pt.:</b>	No data available
<b>Spec Grav./Density:</b>	1.12	<b>Flash Point:</b>	Does not flash
<b>Viscosity:</b>	No data available	<b>Auto-Ignition Temp:</b>	No data available
<b>Boiling Point:</b>	>212°F	<b>UFL/LFL:</b>	No data available
<b>Partition Coefficient:</b>	No data available		
<b>Vapor Pressure:</b>	No data available		





# SAFETY DATA SHEET

U.S. Water Services

C-358A

pH: >12  
Evap. Rate: <1 (butyl acetate = 1)  
Decomp Temp: No data available

## 10 STABILITY AND REACTIVITY

**Chemical Stability:** Product is stable under normal storage and use conditions.  
**Conditions to Avoid:** Avoid temperature extremes. Protect from freezing  
**Materials to Avoid:** Acids, oxidizing materials, halogen compounds, copper, zinc and galvanized metals.  
**Hazardous Decomposition:** Carbon monoxide, carbon dioxide, ammonia, and oxides of nitrogen  
**Hazardous Polymerization:** Will not occur.

## 11 TOXICOLOGICAL INFORMATION

**Acute Toxicity:** No data available  
**Skin Corrosion/Irritation:** No data available  
**Serious eye damage/irritation:** No data available  
**Respiratory or skin sensitization:** No data available  
**Specific target organ toxicity (single exposure):** No data available  
**Specific target organ toxicity (repeated exposure):** No data available  
**Aspiration hazard:** No data available  
**Carcinogenicity:** No carcinogenic effects are known for the components of this product  
**Germ Cell Mutagenicity:** No mutagenic effects are known for the components of this product  
**Teratogenicity:** No teratogenic effects are known for the components of this product

## 12 ECOLOGICAL INFORMATION

**Aquatic Toxicity:** No data available  
**Elimination (persistence & degradability):** No data available  
**Bioaccumulative potential:** No data available  
**Mobility in soil:** No data available  
**Other adverse effects:** No data available

## 13 DISPOSAL CONSIDERATIONS

Dispose of in accordance with local regulations.

This material should be fully characterized for toxicity and possible reactivity prior to disposal (40 CFR 261). Use which results in chemical or physical change or contamination may subject it to regulation as a hazardous waste. Along with properly characterizing all waste materials, consult state and local regulations regarding the proper disposal of this material.

Container contents should be completely used and containers should be emptied prior to discard. Container rinsate could be considered a RCRA hazardous waste and must be disposed of with care and in full compliance with federal, state and local regulations. Larger empty containers, such as drums, should be returned to the distributor or to a drum reconditioner. To assure proper disposal of smaller empty containers, consult with state and local regulations and disposal authorities.





# SAFETY DATA SHEET

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## 14 TRANSPORT INFORMATION

UN1719, Caustic alkali liquids, n.o.s., 8, PGI, (Sodium hydroxide)

Certain shipping modes or package sizes may have exceptions from the transport regulations. The classification provided may not reflect those exceptions and may not apply to all shipping modes or package sizes.

DOT Transportation data (49 CFR 172.101)

See section 15 for information on Reportable Quantity chemicals (RQ)

## 15 REGULATORY INFORMATION

Component (CAS#) [%] - CODES

RQ(1000LBS), Sodium hydroxide (1310-73-2) [10-15%] CERCLA, CSWHS, MASS, OSHAWAC, PA, TSCA, TXAIR

### Regulatory CODE Descriptions

- RQ = Reportable Quantity
- CERCLA = Superfund clean up substance
- CSWHS = Clean Water Act Hazardous substances
- MASS = MA Massachusetts Hazardous Substances List
- OSHA = OSHA Workplace Air Contaminants
- PA = PA Right-To-Know List of Hazardous Substances
- TSCA = Toxic Substances Control Act
- TXAIR = TX Air Contaminants with Health Effects Screening Level

TSCA: All components of this product are listed (or are not required to be listed) in the TSCA inventory  
 EPA / CERCLA / SARA TITLE III:  
**Toxic Chemical List (SARA 313):** This product does not contain any chemicals subject to routine annual toxic chemical release reporting.  
**Extremely Hazardous Substance (SARA 302/304):** This product does not contain any extremely hazardous substances subject to emergency planning requirements.  
**SARA 312:** Acute  
**RCRA:** D002

## 16 OTHER INFORMATION

HMIS III: Health = 2, Fire = 0, Physical Hazard = 0  
 HMIS PPE: C - Safety Glasses, Gloves, Apron

HMIS		PPE	
HEALTH	2		
FLAMMABILITY	0		
PHYSICAL HAZARD	0		
PERSONAL PROTECTION	C		



## SAFETY DATA SHEET

U.S. Water Services

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**C-358A**

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**Author:** U.S. Water Services

**Revision Notes:** Updated to GHS format

**Disclaimer:**

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose(s). The above information is not claiming characteristics of the product in term of legal claims of performance / guarantee. This information only describes safety measures and no liability may arise from the use or application of the product described herein. This information is given in good faith and based on our current knowledge of the product.

Revision Date: 12/14/2018

R-630



# SAFETY DATA SHEET

U.S. Water Services

R-630

## 1 PRODUCT AND COMPANY IDENTIFICATION

**Product Identifier:** R-630  
**SDS Number:** W0006  
**Revision Date:** 8/16/2017  
**Version:** 1  
**Product Use:** Boiler Water Treatment  
**Supplier Details:** U.S. Water Services  
12270 43rd St. NE  
St. Michael, MN 55376

**Contact:** Non-emergency #: 866-663-7632  
**Email:** SDS@uswaterservices.com  
**Web:** www.uswaterservices.com

**EMERGENCY RESPONSE: (ChemTel)**  
**US & Canada: 800-255-3924**  
**International: +01-813-248-0585**

## 2 HAZARDS IDENTIFICATION

### Classification of the Substance or Mixture

**GHS Classification in Accordance with 29 CFR 1910 (OSHA HCS):**  
Health, Skin corrosion/irritation, 2

### GHS Label Elements, Including Precautionary Statements

**GHS Signal Word:** **WARNING**

**GHS Hazard Pictograms:**



### GHS Hazard Statements:

H315 - Causes skin irritation

### GHS Precautionary Statements:

P264 - Wash thoroughly after handling.  
P280 - Wear protective gloves/protective clothing/eye protection/face protection.  
P302 + P352 - IF ON SKIN: Wash with plenty of water  
P332 + P313 - If skin irritation occurs: Get medical advice/attention.  
P361 + P364 - Take off immediately all contaminated clothing and wash it before reuse.  
P301 + P312 - IF SWALLOWED: Call a POISON CENTER/ doctor/...if you feel unwell.

**Hazards not Otherwise Classified (HNOC) or not Covered by GHS**





# SAFETY DATA SHEET

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PPE recommendation is advisory only and based on typical use conditions. An industrial hygienist or safety officer familiar with the specific situation of anticipated use must determine actual PPE required when using this product (29 CFR 1910.132)

### 3 COMPOSITION/INFORMATION OF INGREDIENTS

**Ingredients:**

Cas#	%	Chemical Name
7681-57-4	15-25%	Sodium metabisulfite

### 4 FIRST AID MEASURES

- Inhalation:** Remove from contamination. If person has stopped breathing administer artificial respiration. Seek medical attention.
- Skin Contact:** Wash off with soap and plenty of water. Remove contaminated garments and wash or destroy. Seek medical attention if irritation develops. Consult a physician if irritation develops.
- Eye Contact:** Flush eyes with plenty of running water for 15 minutes. Seek medical attention.
- Ingestion:** If conscious, give plenty of water. If discomfort or other symptoms develop, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

**Most important symptoms & effects (acute & delayed):** No data available  
**Indication of need for immediate medical attention:** No data available  
**Special treatment needs:** No data available

### 5 FIRE FIGHTING MEASURES

- Flash Point:** Does not Flash  
**Autoignition Temp:** No data available  
**LEL:** No data available  
**UEL:** No data available

**Extinguishing Media:**

- Suitable:** Use extinguishing media suitable for surrounding fire.
- Unsuitable:** No information available
- Hazardous combustion products:** Hazardous decomposition products formed under fire conditions- Carbon oxides, and other hazardous compounds
- Unusual Fire or Explosion Hazards:** None known
- Special protective equipment/precautions:** Wear self-contained breathing apparatus

### 6 ACCIDENTAL RELEASE MEASURES

- Personal Precautions, Protective equipment, emergency procedures:** Avoid contact with the material. See section 8 of SDS for PPE recommendations
- Environmental Precautions:** Keep runoff from entering drains or waterways



# SAFETY DATA SHEET

U.S. Water Services

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**Spill/Leak procedures:** Contain spill or leak. Dike area if necessary to prevent spill from spreading or entering sewers and waterways. Recover as much as possible then absorb remainder with inert material. Place into closed container for disposal.

**Regulatory Requirements:** Dispose of recovered material in accordance with all applicable state and federal regulations.

## 7 HANDLING AND STORAGE

**Handling Precautions:** Avoid contact with eyes, skin, or clothing. Do not taste or swallow. Do not inhale vapor or mist. Use with adequate ventilation. For industrial use only!

**Storage Requirements:** Keep away from children. Store in closed containers away from temperature extremes and incompatible materials. Store in properly labeled containers in accordance with all local, state and federal guidelines. Do not store in zinc, aluminum, brass, or tin.

## 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

**Engineering Controls:** Provide local exhaust ventilation as needed to control misting.

**Personal Protective Equipment:** HMIS PP, C | Safety Glasses, Gloves, Apron

Respiratory protection: If needed use MSHA/NIOSH approved respirator. Seek professional advice prior to respirator selection and use. Follow all requirements of OSHA respirator regulations (29 CFR 1910.134)

Safety Stations: Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

General Hygiene: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, using the toilet, or applying cosmetics.

PPE recommendation is advisory only and based on typical use conditions. An industrial hygienist or safety officer familiar with the specific situation of anticipated use must determine actual PPE required when using this product (29 CFR 1910.132)

**Exposure Limits:**

OSHA (TWA)/PEL: Not Established

ACGIH (TWA/TLV): Not Established

## 9 PHYSICAL AND CHEMICAL PROPERTIES

**Appearance:** Clear, Pink

**Physical State:** Liquid

**Odor Threshold:** No data available

**Spec Grav./Density:** 10.43 Lb/Gal

**Viscosity:** No data available

**Boiling Point:** >212°F

**Partition Coefficient:** No data available

**Vapor Pressure:** No data available

**pH:** ~6.5

**Evap. Rate:** <1 (butyl acetate = 1)

**Decomp Temp:** No data available

**Odor:** No appreciable odor

**Solubility:** Complete

**Freezing/Melting Pt.:** No data available

**Flash Point:** Does not flash

**Auto-Ignition Temp:** No data available

**UFL/LFL:** No data available



# SAFETY DATA SHEET

U.S. Water Services

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## 10 STABILITY AND REACTIVITY

- Chemical Stability:** Product is stable under normal storage and use conditions.
- Conditions to Avoid:** Avoid temperature extremes. Protect from freezing
- Materials to Avoid:** Strong Oxidizing Agents may cause exothermic reaction
- Hazardous Decomposition:** Thermal decomposition may produce carbon oxides and other toxic compounds.
- Hazardous Polymerization:** Will not occur.

## 11 TOXICOLOGICAL INFORMATION

- Acute Toxicity:** No data available
- Skin Corrosion/Irritation:** No data available
- Serious eye damage/irritation:** No data available
- Respiratory or skin sensitization:** No data available
- Specific target organ toxicity (single exposure):** No data available
- Specific target organ toxicity (repeated exposure):** No data available
- Aspiration hazard:** No data available
- Carcinogenicity:** No carcinogenic effects are known for the components of this product
- Germ Cell Mutagenicity:** No mutagenic effects are known for the components of this product
- Teratogenicity:** No teratogenic effects are known for the components of this product

## 12 ECOLOGICAL INFORMATION

- Aquatic Toxicity:** No data available
- Elimination (persistence & degradability):** No data available
- Bioaccumulative potential:** No data available
- Mobility in soil:** No data available
- Other adverse effects:** No data available

## 13 DISPOSAL CONSIDERATIONS

Dispose of in accordance with local regulations.

This material should be fully characterized for toxicity and possible reactivity prior to disposal (40 CFR 261). Use which results in chemical or physical change or contamination may subject it to regulation as a hazardous waste. Along with properly characterizing all waste materials, consult state and local regulations regarding the proper disposal of this material.

Container contents should be completely used and containers should be emptied prior to discard. Container rinsate could be considered a RCRA hazardous waste and must be disposed of with care and in full compliance with federal, state and local regulations. Larger empty containers, such as drums, should be returned to the distributor or to a drum reconditioner. To assure proper disposal of smaller empty containers, consult with state and local regulations and disposal authorities.

## 14 TRANSPORT INFORMATION





# SAFETY DATA SHEET

U.S. Water Services

R-630

Proper Shipping Name: Non-Regulated

DOT Transportation data (49 CFR 172.101)

## 15 REGULATORY INFORMATION

### Component (CAS#) [%] - CODES

Sodium metabisulfite (7681-57-4) [15-25%] MASS, OSHAWAC, PA, TSCA, TXAIR

### Regulatory CODE Descriptions

MASS = MA Massachusetts Hazardous Substances List

OSHA = OSHA Workplace Air Contaminants

PA = PA Right-To-Know List of Hazardous Substances

TSCA = Toxic Substances Control Act

TXAIR = TX Air Contaminants with Health Effects Screening Level

TSCA: All components of this product are listed (or are not required to be listed) in the TSCA inventory

EPA / CERCLA / SARA TITLE III:

**Toxic Chemical List (SARA 313):** This product does not contain any chemicals subject to routine annual toxic chemical release reporting.

**Extremely Hazardous Substance (SARA 302/304):** This product does not contain any extremely hazardous substances subject to emergency planning requirements.

**SARA 312:** Acute

**RCRA:** No data available





# SAFETY DATA SHEET

U.S. Water Services

R-630

## 16 OTHER INFORMATION

HMIS III: Health = 2, Fire = 0, Physical Hazard = 0  
HMIS PPE: C - Safety Glasses, Gloves, Apron

HMIS	
HEALTH	2
FLAMMABILITY	0
PHYSICAL HAZARD	0
PERSONAL PROTECTION	C

Author: U.S. Water Services

Revision Notes: Updated to GHS format

**Disclaimer:**

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose(s). The above information is not claiming characteristics of the product in term of legal claims of performance / guarantee. This information only describes safety measures and no liability may arise from the use or application of the product described herein. This information is given in good faith and based on our current knowledge of the product.

# Industrial and Sanitary Outfalls 2019 NPDES Permit Re-Application Outfall 03A048 Fact Sheet

Los Alamos Neutron Science Center (LANSCE) Facility Operations (LFO)  
TA-53-963/964 and TA-53-978/979 Cooling Towers





## Revision Log

<u>Revision No.</u>	<u>Date</u>	<u>Page Nos.</u>	<u>Change Description</u>
<u>0</u>	<u>3/18/2019</u>	<u>NA</u>	<u>Original</u>
<u>1</u>	<u>7/31/2019</u>	<u>Attachment D, page D-5</u>	<u>Revised the summary line for copper to say "Copper, Dissolved"</u>
		<u>Attachment D, page D-5</u>	<u>Revised the summary line for aluminum, to say "Aluminum, Total"</u>
		<u>Attachment D, page D-6</u>	<u>Revised the summary line for Adjusted Gross Alpha from "Mercury" to "Adjusted Gross Alpha"</u>
-	-	-	-
-	-	-	-
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-	-	-	-
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OUTFALL No.	TA - Bldg.	Year	Monitoring Period	Parameter	Quantity or Loading			Quality or Concentration							Number of Samples	Frequency	Notes
					Average	Maximum	Units	Minimum	Average	Maximum	Units	Permit Limit	Units				
03A048	TA-53-963, 964, 978, 979	2015	Jun	Total Suspended Solids				****	<0.57	<0.57	mg/L	30 - 100	mg/L	1	Quarterly	Require by Permit	
03A048	TA-53-963, 964, 978, 979	2015	Sept	Total Suspended Solids				****	<0.57	<0.57	mg/L	30 - 100	mg/L	1	Quarterly	Require by Permit	
03A048	TA-53-963, 964, 978, 979	2015	Dec	Total Suspended Solids				****	<0.57	<0.57	mg/L	30 - 100	mg/L	1	Quarterly	Require by Permit	
03A048	TA-53-963, 964, 978, 979	2016	Mar	Total Suspended Solids				****	<1.14	<1.14	mg/L	30 - 100	mg/L	1	Quarterly	Require by Permit	
03A048	TA-53-963, 964, 978, 979	2016	Jun	Total Suspended Solids				****	0.625	0.625	mg/L	30 - 100	mg/L	1	Quarterly	Require by Permit	
03A048	TA-53-963, 964, 978, 979	2016	Sept	Total Suspended Solids				****	<5.7	<5.7	mg/L	30 - 100	mg/L	1	Quarterly	Require by Permit	
03A048	TA-53-963, 964, 978, 979	2016	Dec	Total Suspended Solids				****	<0.57	<0.57	mg/L	30 - 100	mg/L	1	Quarterly	Require by Permit	
03A048	TA-53-963, 964, 978, 979	2017	Mar	Total Suspended Solids				****	0.7	0.7	mg/L	30 - 100	mg/L	1	Quarterly	Require by Permit	
03A048	TA-53-963, 964, 978, 979	2017	Jun	Total Suspended Solids				****	<0.57	<0.57	mg/L	30 - 100	mg/L	1	Quarterly	Require by Permit	
03A048	TA-53-963, 964, 978, 979	2017	Sept	Total Suspended Solids				****	<0.57	<0.57	mg/L	30 - 100	mg/L	1	Quarterly	Require by Permit	
03A048	TA-53-963, 964, 978, 979	2017	Dec	Total Suspended Solids				****	<0.57	<0.57	mg/L	30 - 100	mg/L	1	Quarterly	Require by Permit	
03A048	TA-53-963, 964, 978, 979	2018	Mar	Total Suspended Solids				****	5.9	5.9	mg/L	30 - 100	mg/L	1	Quarterly	Require by Permit	
03A048	TA-53-963, 964, 978, 979	2018	Jun	Total Suspended Solids				****	<0.57	<0.57	mg/L	30 - 100	mg/L	1	Quarterly	Require by Permit	
03A048	TA-53-963, 964, 978, 979	2018	Sept	Total Suspended Solids				****	<0.591	<0.613	mg/L	30 - 100	mg/L	2	Quarterly	Require by Permit	
<b>Total Suspended Solids</b>					<b>Daily Average</b>				<b>2.0</b>					<b>17</b>			
<b>Total Suspended Solids</b>					<b>Maximum 30 Day Average</b>				<b>5.9</b>					<b>17</b>			
<b>Total Suspended Solids</b>					<b>Maximum</b>					<b>5.9</b>				<b>17</b>			
03A048	TA-53-963, 964, 978, 979	2015	Sept	Arsenic, Total				****	0.00284	0.00284	mg/L	0.013	mg/L	1	Yearly	Require by Permit	
03A048	TA-53-963, 964, 978, 979	2016	Sept	Arsenic, Total				****	0.00426	0.00426	mg/L	0.013	mg/L	1	Yearly	Require by Permit	
03A048	TA-53-963, 964, 978, 979	2017	Sept	Arsenic, Total				****	0.00294	0.00294	mg/L	0.013	mg/L	1	Yearly	Require by Permit	
03A048	TA-53-963, 964, 978, 979	2018	Sept	Arsenic, Total				****	0.0062	0.00282	mg/L	0.013	mg/L	2	Yearly	Require by Permit	
<b>Arsenic, Total</b>					<b>Daily Average</b>				<b>0.004060</b>					<b>5</b>			
<b>Arsenic, Total</b>					<b>Maximum 30 Day Average</b>				<b>0.00620</b>					<b>5</b>			
<b>Arsenic, Total</b>					<b>Maximum</b>					<b>0.00426</b>				<b>5</b>			
03A048	TA-53-963, 964, 978, 979	2015	Sept	Copper, Dissolved				****	****	0.00127	mg/L	0.0233	mg/L	1	Yearly	Require by Permit	
03A048	TA-53-963, 964, 978, 979	2016	Sept	Copper, Dissolved				****	****	0.00122	mg/L	0.0233	mg/L	1	Yearly	Require by Permit	
03A048	TA-53-963, 964, 978, 979	2017	Sept	Copper, Dissolved				****	****	0.00149	mg/L	0.0233	mg/L	1	Yearly	Require by Permit	
03A048	TA-53-963, 964, 978, 979	2018	Sept	Copper, Dissolved				****	****	0.00109	mg/L	0.0233	mg/L	1	Yearly	Require by Permit	
<b>Copper, Dissolved</b>					<b>Daily Average</b>				<b>0.0013</b>					<b>4</b>			
<b>Copper, Dissolved</b>					<b>Maximum 30 Day Average</b>				<b>0.00149</b>					<b>4</b>			
<b>Copper, Dissolved</b>					<b>Maximum</b>					<b>0.00149</b>				<b>4</b>			
03A048	TA-53-963, 964, 978, 979	2015	Sept	Aluminum, Total				****	****	<0.015	mg/L	7.592	mg/L	1	Yearly	Require by Permit	
03A048	TA-53-963, 964, 978, 979	2016	Sept	Aluminum, Total				****	****	<0.015	mg/L	7.592	mg/L	1	Yearly	Require by Permit	
03A048	TA-53-963, 964, 978, 979	2017	Sept	Aluminum, Total				****	****	<0.0193	mg/L	7.592	mg/L	1	Yearly	Require by Permit	
03A048	TA-53-963, 964, 978, 979	2018	Sept	Aluminum, Total				****	****	<0.0193	mg/L	7.592	mg/L	1	Yearly	Require by Permit	
<b>Aluminum, Total</b>					<b>Daily Average</b>				<b>0.0000</b>					<b>4</b>			
<b>Aluminum, Total</b>					<b>Maximum 30 Day Average</b>				<b>0</b>					<b>4</b>			
<b>Aluminum, Total</b>					<b>Maximum</b>					<b>0</b>				<b>4</b>			
03A048	TA-53-963, 964, 978, 979	2015	Sept	Mercury, Dissolved				****	****	<0.067	mg/L	1.4	mg/L	1	Yearly	Require by Permit	
03A048	TA-53-963, 964, 978, 979	2016	Sept	Mercury, Dissolved				****	****	<0.067	mg/L	1.4	mg/L	1	Yearly	Require by Permit	
03A048	TA-53-963, 964, 978, 979	2017	Sept	Mercury, Dissolved				****	****	<0.067	mg/L	1.4	mg/L	1	Yearly	Require by Permit	
03A048	TA-53-963, 964, 978, 979	2018	Sept	Mercury, Dissolved				****	****	<0.067	mg/L	1.4	mg/L	1	Yearly	Require by Permit	
<b>Mercury, Dissolved</b>					<b>Daily Average</b>				<b>0.0000</b>					<b>4</b>			



OUTFALL No.	TA - Bldg.	Year	Monitoring Period	Parameter	Quantity or Loading			Quality or Concentration									
					Average	Maximum	Units	Minimum	Average	Maximum	Units	Permit Limit	Units	Number of Samples	Frequency	Notes	
				Mercury, Dissolved	Maximum 30 Day Average				0						4		
				Mercury, Dissolved	Maximum					0					4		
03A048	TA-53-963, 964, 978, 979	2015	Sept	Mercury, Total				****	****	<0.067	mg/L	0.77	mg/L	1	Yearly	Require by Permit	
03A048	TA-53-963, 964, 978, 979	2016	Sept	Mercury, Total				****	****	<0.067	mg/L	0.77	mg/L	1	Yearly	Require by Permit	
03A048	TA-53-963, 964, 978, 979	2017	Sept	Mercury, Total				****	****	<0.067	mg/L	0.77	mg/L	1	Yearly	Require by Permit	
03A048	TA-53-963, 964, 978, 979	2018	Sept	Mercury, Total				****	****	<0.067	mg/L	0.77	mg/L	2	Yearly	Require by Permit	
				Mercury, Total	Daily Average				0.0000						5		
				Mercury, Total	Maximum 30 Day Average				0						5		
				Mercury, Total	Maximum					0					5		
03A048	TA-53-963, 964, 978, 979	2015	Sept	Chromium VI				****	0.00717	0.00717	mg/L	Report	NA	1	Term	Require by Permit	
				Chromium VI	Daily Average										1		
				Chromium VI	Maximum 30 Day Average										1		
				Chromium VI	Maximum					0.00717					1		
03A048	TA-53-963, 964, 978, 979	2016	Sept	Adjusted Gross Alpha				****	0.597	0.597	pCi/L	Report	mg/L	1	Term	Require by Permit	
				<del>Mercury, Total</del> Adjusted Gross Alpha	Daily Average										1		
				<del>Mercury, Total</del> Adjusted Gross Alpha	Maximum 30 Day Average										1		
				<del>Mercury, Total</del> Adjusted Gross Alpha	Maximum					0.597					1		

# **Industrial and Sanitary Outfalls**

## **2019 NPDES Permit Re-Application**

### **Outfall 03A113 Fact Sheet**

Los Alamos Neutron Science Center (LANSCE) Facility Operations (LFO)  
TA-53-952 Cooling Tower



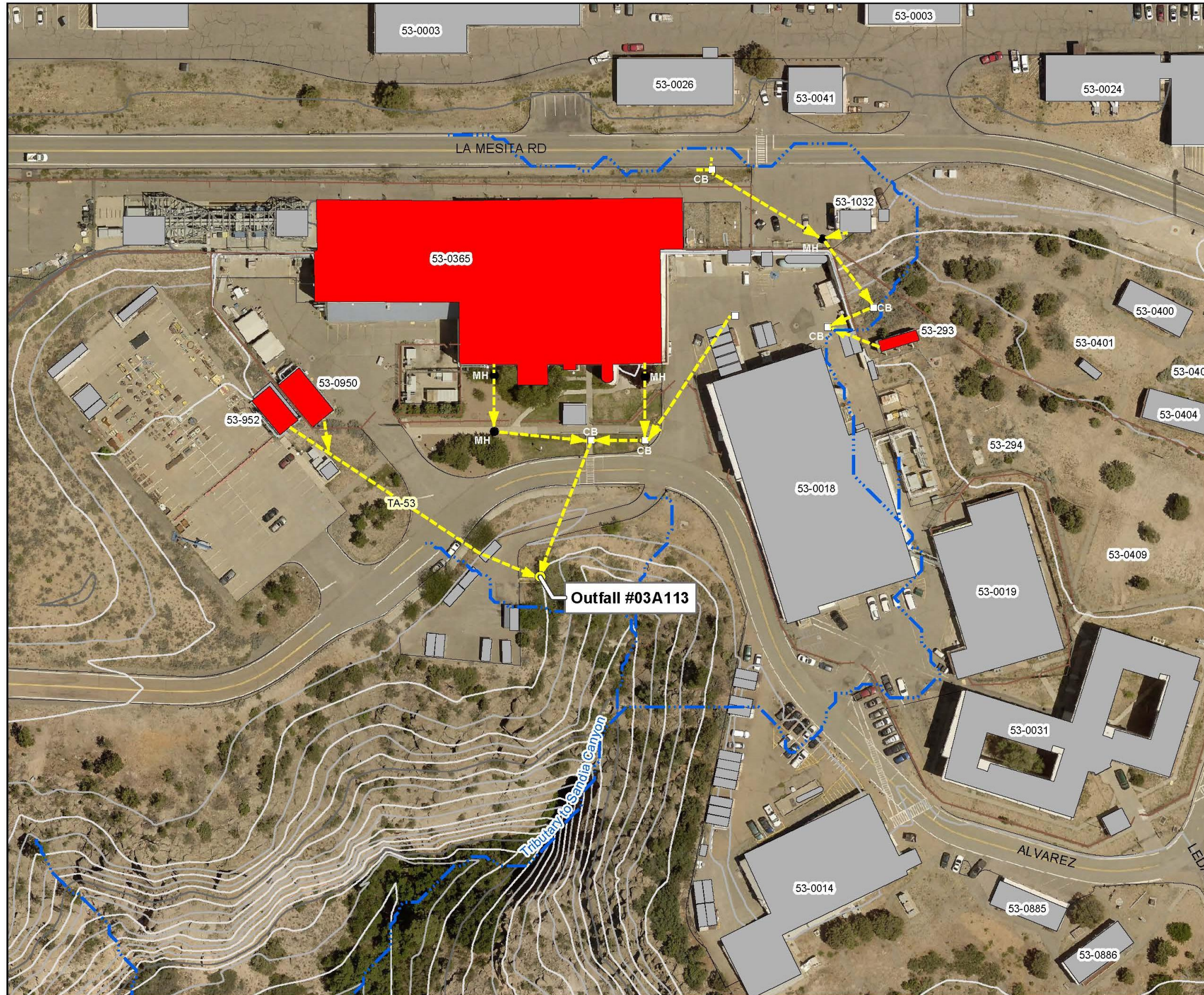
Revision Log

<u>Revision No.</u>	<u>Date</u>	<u>Page Nos.</u>	<u>Change Description</u>
<u>0</u>	<u>3/18/2019</u>	<u>NA</u>	<u>Original</u>
<u>1</u>	<u>7/31/2019</u>	<u>Attachment A, page A-1</u>	<u>Replaced the location map that shows Outfall 03A048 with the correct map that shows Outfall 03A113.</u>
		<u>Attachment D, page D-4</u>	<u>Replaced Phosphorus with "Phosphorus, Total"</u>
		<u>Attachment D, page D-5</u>	<u>Replaced the summary line for copper with "Copper, Dissolved."</u>
		<u>Attachment D, page D-5</u>	<u>Replaced the summary line for aluminum with "Aluminum, Total."</u>
		<u>Attachment D, page D-5</u>	<u>Replaced the summary line for Adjusted Gross Alpha from "Mercury, Total" to "Adjusted Gross Alpha."</u>
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**ATTACHMENT A: Location Map for Outfall 03A113**



**NPDES Permit Re-Application Project  
 TA-53 Building 293, 365, 950,  
 952, Outfall #03A113**

**Legend**

NPDES Outfall	Source Structures
Outfall Flow	Building Served by Source
Springs	Structures
Drainages	LANL Boundary
100ft Contours	Technical Areas
20ft Contours	Catch Basin
10ft Contours	Manhole
Fences	
Dirt Roads	
Paved Roads	

0 30 60 120 180 240  
 Feet

0 10 20 40 60 80  
 Meters

1:1,000

State Plane Coordinate System  
 New Mexico, Central Zone, US Feet  
 NAD 1983 Datum, NGVD 1929

Map Updated By: Bethann McVicker, IF-PROG  
 Map #18-129-03 21 February 2019

Disclaimer: This map was created for work processes associated with the Water Quality & RCRA. All other uses for this map should be confirmed with LANL EPC-RCRA staff.



OUTFALL No.	TA - Bldg.	Year	Monitoring Period	Parameter	Quantity or Loading			Quality or Concentration								
					Average	Maximum	Units	Minimum	Average	Maximum	Units	Permit Limit	Units	Number of Samples	Frequency	Notes
03A113	TA-53-950, 952, 293	2017	Mar	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	5.0	Weekly	Permit Required
03A113	TA-53-950, 952, 293	2017	Apr	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Permit Required
03A113	TA-53-950, 952, 293	2017	May	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Permit Required
03A113	TA-53-950, 952, 293	2017	Jun	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	5.0	Weekly	Permit Required
03A113	TA-53-950, 952, 293	2017	Jul	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Permit Required
03A113	TA-53-950, 952, 293	2017	Aug	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	5.0	Weekly	Permit Required
03A113	TA-53-950, 952, 293	2017	Sept	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Permit Required
03A113	TA-53-950, 952, 293	2017	Oct	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Permit Required
03A113	TA-53-950, 952, 293	2017	Nov	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	5.0	Weekly	Permit Required
03A113	TA-53-950, 952, 293	2017	Dec	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Permit Required
03A113	TA-53-950, 952, 293	2018	Jan	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Permit Required
03A113	TA-53-950, 952, 293	2018	Feb	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Permit Required
03A113	TA-53-950, 952, 293	2018	Mar	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	5.0	Weekly	Permit Required
03A113	TA-53-950, 952, 293	2018	Apr	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	5.0	Weekly	Permit Required
03A113	TA-53-950, 952, 293	2018	May	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	5.0	Weekly	Permit Required
03A113	TA-53-950, 952, 293	2018	Jun	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Permit Required
03A113	TA-53-950, 952, 293	2018	Jul	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	5.0	Weekly	Permit Required
03A113	TA-53-950, 952, 293	2018	Aug	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Permit Required
03A113	TA-53-950, 952, 293	2018	Sept	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	5.0	Weekly	Permit Required
<b>Total Residual Chlorine</b>					<b>Daily Average</b>										<b>201</b>	
<b>Total Residual Chlorine</b>					<b>Maximum 30 Day Average</b>				<b>0</b>						<b>201</b>	
<b>Total Residual Chlorine</b>					<b>Maximum</b>					<b>0</b>					<b>201</b>	
03A113	TA-53-950, 952, 293	2014	Dec	Phosphorus, <u>Total</u>				****	0.142	0.142	mg/L	20 - 40	mg/L	1	Quarterly	Permit Required
03A113	TA-53-950, 952, 293	2015	Mar	Phosphorus, <u>Total</u>				****	0.0949	0.0949	mg/L	20 - 40	mg/L	1	Quarterly	Permit Required
03A113	TA-53-950, 952, 293	2015	Jun	Phosphorus, <u>Total</u>				****	0.155	0.155	mg/L	20 - 40	mg/L	1	Quarterly	Permit Required
03A113	TA-53-950, 952, 293	2015	Sept	Phosphorus, <u>Total</u>				****	0.0729	0.0729	mg/L	20 - 40	mg/L	1	Quarterly	Permit Required
03A113	TA-53-950, 952, 293	2015	Dec	Phosphorus, <u>Total</u>				****	<0.056	<0.056	mg/L	20 - 40	mg/L	1	Quarterly	Permit Required
03A113	TA-53-950, 952, 293	2016	Mar	Phosphorus, <u>Total</u>				****	0.0939	0.0939	mg/L	20 - 40	mg/L	1	Quarterly	Permit Required
03A113	TA-53-950, 952, 293	2016	Jun	Phosphorus, <u>Total</u>				****	0.0722	0.0722	mg/L	20 - 40	mg/L	1	Quarterly	Permit Required
03A113	TA-53-950, 952, 293	2016	Sept	Phosphorus, <u>Total</u>				****	0.302	0.302	mg/L	20 - 40	mg/L	1	Quarterly	Permit Required
03A113	TA-53-950, 952, 293	2016	Dec	Phosphorus, <u>Total</u>				****	0.147	0.147	mg/L	20 - 40	mg/L	1	Quarterly	Permit Required
03A113	TA-53-950, 952, 293	2017	Mar	Phosphorus, <u>Total</u>				****	0.074	0.074	mg/L	20 - 40	mg/L	1	Quarterly	Permit Required
03A113	TA-53-950, 952, 293	2017	Jun	Phosphorus, <u>Total</u>				****	0.0952	0.0952	mg/L	20 - 40	mg/L	1	Quarterly	Permit Required
03A113	TA-53-950, 952, 293	2017	Sept	Phosphorus, <u>Total</u>				****	0.0948	0.0948	mg/L	20 - 40	mg/L	1	Quarterly	Permit Required
03A113	TA-53-950, 952, 293	2017	Dec	Phosphorus, <u>Total</u>				****	0.144	0.144	mg/L	20 - 40	mg/L	1	Quarterly	Permit Required
03A113	TA-53-950, 952, 293	2018	Mar	Phosphorus, <u>Total</u>				****	0.103	0.103	mg/L	20 - 40	mg/L	1	Quarterly	Permit Required
03A113	TA-53-950, 952, 293	2018	Jun	Phosphorus, <u>Total</u>				****	0.144	0.144	mg/L	20 - 40	mg/L	1	Quarterly	Permit Required
03A113	TA-53-950, 952, 293	2018	Sept	Phosphorus, <u>Total</u>				****	0.0982	0.0982	mg/L	20 - 40	mg/L	1	Quarterly	Permit Required
<b>Phosphorus, <u>Total</u></b>					<b>Daily Average</b>				<b>0.1</b>						<b>16</b>	
<b>Phosphorus, <u>Total</u></b>					<b>Maximum 30 Day Average</b>				<b>0.302</b>						<b>16</b>	
<b>Phosphorus, <u>Total</u></b>					<b>Maximum</b>					<b>0.302</b>				<b>16</b>		
03A113	TA-53-950, 952, 293	2014	Dec	Total Suspended Solids				****	<0.57	<0.57	mg/L	30 - 100	mg/L	1	Quarterly	Permit Required
03A113	TA-53-950, 952, 293	2015	Mar	Total Suspended Solids				****	<0.57	<0.57	mg/L	30 - 100	mg/L	1	Quarterly	Permit Required
03A113	TA-53-950, 952, 293	2015	Jun	Total Suspended Solids				****	1	1	mg/L	30 - 100	mg/L	1	Quarterly	Permit Required

OUTFALL No.	TA - Bldg.	Year	Monitoring Period	Parameter	Quantity or Loading			Quality or Concentration								
					Average	Maximum	Units	Minimum	Average	Maximum	Units	Permit Limit	Units	Number of Samples	Frequency	Notes
03A113	TA-53-950, 952, 293	2015	Sept	Total Suspended Solids				****	1	1	mg/L	30 - 100	mg/L	1	Quarterly	Permit Required
03A113	TA-53-950, 952, 293	2015	Dec	Total Suspended Solids				****	<0.57	<0.57	mg/L	30 - 100	mg/L	1	Quarterly	Permit Required
03A113	TA-53-950, 952, 293	2016	Mar	Total Suspended Solids				****	0.7	0.7	mg/L	30 - 100	mg/L	1	Quarterly	Permit Required
03A113	TA-53-950, 952, 293	2016	Jun	Total Suspended Solids				****	<0.57	<0.57	mg/L	30 - 100	mg/L	1	Quarterly	Permit Required
03A113	TA-53-950, 952, 293	2016	Sept	Total Suspended Solids				****	<0.582	<0.582	mg/L	30 - 100	mg/L	1	Quarterly	Permit Required
03A113	TA-53-950, 952, 293	2016	Dec	Total Suspended Solids				****	<0.57	<0.57	mg/L	30 - 100	mg/L	1	Quarterly	Permit Required
03A113	TA-53-950, 952, 293	2017	Mar	Total Suspended Solids				****	5.68	5.68	mg/L	30 - 100	mg/L	1	Quarterly	Permit Required
03A113	TA-53-950, 952, 293	2017	Jun	Total Suspended Solids				****	<0.57	<0.57	mg/L	30 - 100	mg/L	1	Quarterly	Permit Required
03A113	TA-53-950, 952, 293	2017	Sept	Total Suspended Solids				****	<0.57	<0.57	mg/L	30 - 100	mg/L	1	Quarterly	Permit Required
03A113	TA-53-950, 952, 293	2017	Dec	Total Suspended Solids				****	<0.57	<0.57	mg/L	30 - 100	mg/L	1	Quarterly	Permit Required
03A113	TA-53-950, 952, 293	2018	Mar	Total Suspended Solids				****	0.6	0.6	mg/L	30 - 100	mg/L	1	Quarterly	Permit Required
03A113	TA-53-950, 952, 293	2018	Jun	Total Suspended Solids				****	<0.57	<0.57	mg/L	30 - 100	mg/L	1	Quarterly	Permit Required
03A113	TA-53-950, 952, 293	2018	Sept	Total Suspended Solids				****	<0.57	<0.57	mg/L	30 - 100	mg/L	1	Quarterly	Permit Required
<b>Total Suspended Solids</b>					<b>Daily Average</b>				<b>1.8</b>					<b>16</b>		
<b>Total Suspended Solids</b>					<b>Maximum 30 Day Average</b>				<b>5.68</b>					<b>16</b>		
<b>Total Suspended Solids</b>					<b>Maximum</b>					<b>5.68</b>				<b>16</b>		
03A113	TA-53-950, 952, 293	2015	Sept	Copper, Dissolved				****	****	0.00315	mg/L		mg/L	1	Yearly	Permit Required
03A113	TA-53-950, 952, 293	2016	Sept	Copper, Dissolved				****	****	0.00728	mg/L	NA	mg/L	1	Yearly	Permit Required
03A113	TA-53-950, 952, 293	2017	Sept	Copper, Dissolved				****	****	0.00395	mg/L		mg/L	1	Yearly	Permit Required
03A113	TA-53-950, 952, 293	2018	Sept	Copper, Dissolved				****	****	0.00489	mg/L		mg/L	1	Yearly	Permit Required
<b>Copper, Dissolved</b>					<b>Daily Average</b>				<b>0.0048</b>					<b>4</b>		
<b>Copper, Dissolved</b>					<b>Maximum 30 Day Average</b>				<b>0.00728</b>					<b>4</b>		
<b>Copper, Dissolved</b>					<b>Maximum</b>					<b>0.00728</b>				<b>4</b>		
03A113	TA-53-950, 952, 293	2015	Sept	Aluminum, Total				****	****	<0.015	mg/L		mg/L	1	Yearly	Permit Required
03A113	TA-53-950, 952, 293	2016	Sept	Aluminum, Total				****	****	<0.015	mg/L	NA	mg/L	1	Yearly	Permit Required
03A113	TA-53-950, 952, 293	2017	Sept	Aluminum, Total				****	****	<0.0193	mg/L		mg/L	1	Yearly	Permit Required
03A113	TA-53-950, 952, 293	2018	Sept	Aluminum, Total				****	****	<0.0193	mg/L		mg/L	1	Yearly	Permit Required
<b>Aluminum, Total</b>					<b>Daily Average</b>									<b>4</b>		
<b>Aluminum, Total</b>					<b>Maximum 30 Day Average</b>				<b>0</b>					<b>4</b>		
<b>Aluminum, Total</b>					<b>Maximum</b>					<b>0</b>				<b>4</b>		
03A113	TA-53-950, 952, 293	2016	Sept	Adjusted Gross Alpha				****	0	0	pCi/L	NA	mg/L	1	Term	Permit Required
<b>Mercury, Total Adjusted Gross Alpha</b>					<b>Daily Average</b>									<b>1</b>		
<b>Mercury, Total Adjusted Gross Alpha</b>					<b>Maximum 30 Day Average</b>									<b>1</b>		
<b>Mercury, Total Adjusted Gross Alpha</b>					<b>Maximum</b>					<b>0</b>				<b>1</b>		

# **Industrial and Sanitary Outfalls**

## **2019 NPDES Permit Re-Application**

### **Outfall 03A160 Fact Sheet**

Science and Technology Operations (STO)  
National High Magnetic Field Laboratory (NHMFL)  
Cooling Towers



## Revision Log

<u>Revision No.</u>	<u>Date</u>	<u>Page Nos.</u>	<u>Change Description</u>
<u>0</u>	<u>3/18/2019</u>	<u>NA</u>	<u>Original</u>
<u>1</u>	<u>7/31/2019</u>	<u>Attachment D, page D-8</u>	<u>Revised the summary line for arsenic to say "Arsenic, Total."</u>
		<u>Attachment D, page D-8</u>	<u>Revised the summary line for Aluminum to say "Aluminum, Total."</u>
		<u>Attachment D, page D-8</u>	<u>Revised the summary line for Chromium VI to say "Chromium VI."</u>
		<u>Attachment D, page D-8</u>	<u>Revised Gross Alpha to say "Adjusted Gross Alpha."</u>
		<u>Attachment D, page D-8</u>	<u>Revised the summary line for Adjusted Gross Alpha to say "Adjusted Gross Alpha."</u>
		<u>Attachment E, page E-4</u>	<u>Replaced the MSDS for GC Formula 315 with the current SDS.</u>
		<u>Attachment E, page E-11</u>	<u>Replaced the MSDS for GC Formula 314-T with the current SDS.</u>
		<u>Attachment E, page E-18</u>	<u>Replaced the MSDS for Formula 2011 with the current SDS.</u>
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OUTFALL No.	TA - Bldg.	Year	Monitoring Period	Parameter	Quantity or Loading			Quality or Concentration							
					Average	Maximum	Units	Minimum	Average	Maximum	Units	Permit Limit	Units	Number of Samples	Frequency
03A160	TA35-294, 301	2017	Sept	Phosphorus, Total				****	3.1	3.1	mg/L	20 - 40	mg/L	1	Quarterly
03A160	TA35-294, 301	2017	Dec	Phosphorus, Total				****	0.366	0.366	mg/L	20 - 40	mg/L	1	Quarterly
03A160	TA35-294, 301	2018	Mar	Phosphorus, Total				****	0.0928	0.0928	mg/L	20 - 40	mg/L	1	Quarterly
03A160	TA35-294, 301	2018	Jun	Phosphorus, Total				****	****	****	mg/L	20 - 40	mg/L	0	Quarterly
03A160	TA35-294, 301	2018	Sept	Phosphorus, Total				****	****	****	mg/L	20 - 40	mg/L	0	Quarterly
				<b>Phosphorus, Total</b>	<b>Daily Average</b>				<b>0.325</b>					<b>14</b>	
				<b>Phosphorus, Total</b>	<b>Maximum 30 Day Average</b>				<b>3.100</b>					<b>14</b>	
				<b>Phosphorus, Total</b>	<b>Maximum</b>					<b>3.100</b>			<b>14</b>		
03A160	TA35-294, 301	2015	Sept	Arsenic, Total				****	0.00174	0.00174	mg/L	0.013 - 0.018	mg/L	1	Yearly
03A160	TA35-294, 301	2016	Sept	Arsenic, Total				****	0.00242	0.00242	mg/L	0.013 - 0.018	mg/L	1	Yearly
03A160	TA35-294, 301	2017	Sept	Arsenic, Total				****	0.00259	0.00259	mg/L	0.013 - 0.018	mg/L	1	Yearly
03A160	TA35-294, 301	2018	Sept	Arsenic, Total				****	****	****	mg/L	0.013 - 0.018	mg/L	1	Yearly
				<b>Arsenic, Total</b>	<b>Daily Average</b>				<b>0.00225</b>					<b>4</b>	
				<b>Arsenic, Total</b>	<b>Maximum 30 Day Average</b>				<b>0.00259</b>					<b>4</b>	
				<b>Arsenic, Total</b>	<b>Maximum</b>					<b>0.00259</b>			<b>4</b>		
03A160	TA35-294, 301	2015	Sept	Aluminum, Total				****	****	<0.015	mg/L	NA	NA	1	Yearly
03A160	TA35-294, 301	2016	Sept	Aluminum, Total				****	****	<0.015	mg/L	NA	NA	1	Yearly
03A160	TA35-294, 301	2017	Sept	Aluminum, Total				****	****	<0.0193	mg/L	NA	NA	1	Yearly
03A160	TA35-294, 301	2018	Sept	Aluminum, Total				****	****	****	mg/L	NA	NA	1	Yearly
				<b>Aluminum, Total</b>	<b>Daily Average</b>				<b>0.00000</b>					<b>4</b>	
				<b>Aluminum, Total</b>	<b>Maximum 30 Day Average</b>				<b>0.00000</b>					<b>4</b>	
				<b>Aluminum, Total</b>	<b>Maximum</b>					<b>0.00000</b>			<b>4</b>		
03A160	TA35-294, 301	2015	Sept	Chromium VI				****	0.0087	0.0087	mg/L	NA	NA	1	Term
03A160	TA35-294, 301	2016	Sept	Chromium VI				****	****	****	mg/L	NA	NA	0	Term
03A160	TA35-294, 301	2017	Sept	Chromium VI				****	****	****	mg/L	NA	NA	0	Term
03A160	TA35-294, 301	2018	Sept	Chromium VI				****	****	****	mg/L	NA	NA	0	Term
				<b>Chromium VI</b>	<b>Daily Average</b>				<b>0.00000</b>					<b>1</b>	
				<b>Chromium VI</b>	<b>Maximum 30 Day Average</b>				<b>0.00000</b>					<b>1</b>	
				<b>Chromium VI</b>	<b>Maximum</b>					<b>0.00000</b>			<b>1</b>		
03A160	TA35-294, 301	2015	Sept	Adjusted Gross Alpha				****	****	****	pCi/L	NA	NA	0	Term
03A160	TA35-294, 301	2016	Sept	Adjusted Gross Alpha				****	0	0	pCi/L	NA	NA	1	Term
03A160	TA35-294, 301	2017	Sept	Adjusted Gross Alpha				****	****	****	pCi/L	NA	NA	0	Term
03A160	TA35-294, 301	2018	Sept	Adjusted Gross Alpha				****	****	****	pCi/L	NA	NA	0	Term
				<b>Adjusted Gross Alpha</b>	<b>Daily Average</b>				<b>0.00000</b>					<b>1</b>	
				<b>Adjusted Gross Alpha</b>	<b>Maximum 30 Day Average</b>				<b>0.00000</b>					<b>1</b>	
				<b>Adjusted Gross Alpha</b>	<b>Maximum</b>					<b>0.00000</b>			<b>1</b>		

## GC FORMULA 315



**SAFETY DATA SHEET**

**SECTION 1 - PRODUCT IDENTIFICATION**

PRODUCT NAME:	FORMULA 315
PRODUCT USE:	BIOCIDE
RESTRICTIONS ON USE:	Refer to label, available technical information, and other appropriate sections of this SDS.
UN NUMBER:	3265
PROPER SHIPPING NAME:	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE), 8, PG II
MANUFACTURER'S NAME:	Garratt-Callahan Company
ADDRESS:	50 Ingold Road, Burlingame, CA 94010-2206
EMERGENCY PHONE:	<b>North America: CHEMTREC: 1-800-424-9300</b> <b>Outside North America: +1-703-527-3887</b>
BUSINESS PHONE:	Product Information: 650-697-5811
SDS NUMBER:	SD3315
DATE OF REVISION:	2/11/2016

**SECTION 2 - HAZARDS IDENTIFICATION**

**SIGNAL WORD:** WARNING

**GHS HAZARD STATEMENT:**

- H302: Harmful if swallowed. 4
- H315: Causes skin irritation. 2
- H320: Causes eye irritation. 2B
- H335: May cause respiratory irritation. 3



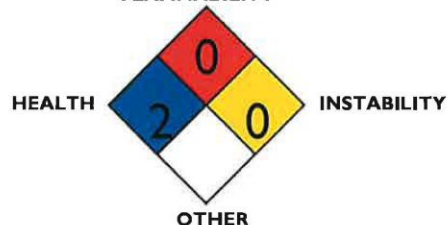
**GHS PREVENTATIVE STATEMENTS:**

- P101: If medical advice is needed, have product container or label at hand.
- P102: Keep out of reach of children.
- P103: Read label before use.
- P261: Avoid breathing dust/fume/gas/mist/vapours/spray.
- P264: Wash all exposed skin/hair thoroughly after handling.
- P270: Do not eat, drink or smoke when using this product.
- P271: Use only outdoors or in a well-ventilated area.
- P280: Wear protective gloves/protective clothing/eye protection/face protection.

**HAZARDOUS MATERIAL IDENTIFICATION SYSTEM**

HEALTH HAZARD (BLUE)	2	Hazard Scale 0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe *=Chronic hazard
FLAMMABILITY HAZARD (RED)	0	
*****HAZARD (YELLOW)	0	

**NFPA RATING  
FLAMMABILITY**



**SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS**

<u>Hazardous Ingredients</u>	<u>CAS#</u>	<u>EC#</u>	<u>ICSC#</u>	<u>WT %</u>
MAGNESIUM NITRATE	10377-60-3	233-826-7	1041	1-3
5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE	26172-55-4	247-500-7	NA	1-2
2-METHYL-4-ISOTHIAZOLIN-3-ONE	2682-20-4	220-239-6	NA	<1
MAGNESIUM CHLORIDE	7786-30-3	232-094-6	0764	<1

**SECTION 4 - FIRST AID MEASURES**

P312: Call a POISON CENTER or doctor/physician if you feel unwell. Take copy of label and SDS to health professional with contaminated individual.

WARNING: This product is a non-flammable, clear yellow green liquid with a pungent odor. Harmful if swallowed, causes skin and eye irritation, may cause respiratory irritation. Also refer to Section 11 for symptoms, effects, and likely routes of exposure for this product.

**TARGET ORGANS:**

ACUTE irritation of skin, eyes, respiratory and gastrointestinal systems.  
 CHRONIC irritation of skin, eyes, respiratory and gastrointestinal systems.

**SKIN EXPOSURE:** P302+P352: IF ON SKIN: Wash with soap and water. Minimum flushing is for 15 minutes. P362: Take off contaminated clothing and wash before reuse. P312: Call a POISON CENTER or doctor/physician if you feel unwell.

**EYE EXPOSURE:** P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing. Use sufficient force to open eyelids. Have contaminated individual "roll" eyes. Minimum flushing is for 15 minutes. P337+P313: If eye irritation persists get medical advice/attention.

**INHALATION:** If vapors, mists, or sprays generated by this product are inhaled, remove contaminated individual to fresh air. Remove or cover gross contamination to avoid exposure to rescuers. P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

**INGESTION:** P301+P312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Do NOT induce vomiting. P330: Rinse mouth. Never induce vomiting or give diluents (milk or water) by mouth to someone who is unconscious, having convulsions, or unable to swallow.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Skin and respiratory disorders, as well as conditions involving the "Target Organs" (see Section 3, Hazard Identification) may be aggravated by prolonged overexposures to this product.

**NOTES TO PHYSICIAN:** Treat symptoms as demonstrated by signs and distress in the patient.

**SECTION 5 - FIRE FIGHTING MEASURES**

SUITABLE (AND UNSUITABLE) EXTINGUISHING MATERIALS:	Product is non-flammable. Use media appropriate for the surrounding fire.
SPECIFIC HAZARDS ARISING FROM THE CHEMICAL:	Non-Flammable Liquid. Explosion hazards in Presence of Various Substances: Non-Explosive in presence of open flames and sparks, or shocks. Special Remarks on Explosion Hazards: None known
SPECIAL PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIREFIGHTERS:	Incipient fire responders should wear eye protection. Structural firefighters must wear Self-Contained Breathing Apparatus and full protective equipment. Isolate materials not yet involved in the fire and protect personnel. Move containers from fire area if this can be done without risk; otherwise, cool with carefully applied water spray. If possible, prevent runoff water from entering storm drains, bodies of water, or other environmentally sensitive areas.



**SECTION 6 - ACCIDENTAL RELEASE MEASURES**

**PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT, ENVIRONMENTAL PRECAUTIONS AND EMERGENCY PROCEDURES.**

**WARNING:** Any container expansion or rounding indicates pressure build-up. Use extreme caution. When opening, release pressure slowly through opening.

**SPILL AND LEAK RESPONSE:** Uncontrolled releases should be responded to by appropriately trained personnel using pre-planned procedures. Proper protective equipment should be used, refer to Section 8 - exposure controls.

**Small Spill:** Mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. P391: Collect spillage.

**Large Spill:** Restrict access to the area. Provide adequate protective equipment and ventilation. Stop leak if without risk. Remove chemicals which can react with the spilled material. Add dry inert material to contain and absorb spilled material. Prevent entry into surface waters, sewers, basements or confined areas, dike if needed. Ensure that exposure to product is not at a concentration exceeding regulatory limits. Decontaminate the area thoroughly. Decontaminate all response equipment with soapy water before returning to service. Place all spill residue in a suitable container and seal. P391: Collect spillage.

**SECTION 7 - HANDLING AND STORAGE**

**PRECAUTIONS FOR SAFE HANDLING:** Keep out of reach of children. All employees who handle this material should be trained to handle it safely. Open containers slowly on a stable surface. As with all chemicals, avoid getting this product ON YOU or IN YOU. Avoid direct or prolonged contact with skin or eyes. Do not ingest. Wash thoroughly after handling this product. Do not eat, drink, smoke, or apply cosmetics while handling this product. Avoid breathing vapors, dusts or mists generated by this product. Use in a well-ventilated location. Remove contaminated clothing immediately. Use only as directed. Refer to Section 8 for exposure controls.

**CONDITIONS FOR SAFE STORAGE:** Containers of this product must be properly labeled. Storage areas of this product should be clearly identified, well-illuminated, clear of obstruction and accessible only to trained and authorized personnel. Store containers in a clean, cool, well ventilated, dry location, away from direct sunlight, away from incompatible materials at temperatures between 50°F (10°C) - 100°F (37°C). Keep container tightly closed when not in use. P405: Store locked up. Do not ingest. Do not breathe vapor mist. Wash hands after handling. Refer to Section 10 for incompatibilities. P403+P233: Store in a well ventilated place. Keep container tightly closed.

**SECTION 8 - EXPOSURE CONTROLS - PERSONAL PROTECTION**

**VENTILATION AND ENGINEERING CONTROLS:** Use with adequate ventilation. Eyewash/safety shower station is recommended to be available near where this product is used/stored.

**EXPOSURE LIMITS/GUIDELINES:**

**EXPOSURE LIMITS IN AIR**

CHEMICAL NAME	CAS#	ACGIH TLV		OSHA PEL	OTHER
		TWA	STEL	TWA	
MAGNESIUM NITRATE	10377-60-3	NE	NE	NE	NE
5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE	26172-55-4	NE	NE	NE	NE
2-METHYL-4-ISOTHIAZOLIN-3-ONE	2682-20-4	NE	NE	NE	NE
MAGNESIUM CHLORIDE	7786-30-3	NE	NE	NE	NE

NE = Not Established

**INGESTION:** P270: Do not eat, drink or smoke when using this product.

**RESPIRATORY PROTECTION:** P261: Avoid breathing dust/fume/gas/mist/vapours/spray. P271: Use only outdoors or in a well-ventilated area. Maintain airborne contaminant concentrations below guidelines listed above, if applicable. Air-purifying respirators with dust/mist/fume filters are recommended if operations may produce mists or sprays from this product.

**EYE PROTECTION:** Safety glasses or safety goggles. If splashing is anticipated, a face shield is recommended. P280: Wear protective gloves/protective clothing/eye protection/face protection.

**SKIN PROTECTION:** **HAND PROTECTION:** P264: Wash all exposed skin/hair thoroughly after handling. P280: Wear protective gloves/protective clothing/eye protection/face protection. Use chemically-resistant gloves when handling this product.  
**BODY PROTECTION:** Use body protection appropriate for task (e.g., lab coat, overalls, gloves).

**SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES**

APPEARANCE and COLOR:	Clear yellow/green liquid	VAPOR PRESSURE, mm Hg @ 20°C :	Not established
ODOR :	Pungent	VAPOR DENSITY (Air=1):	Not established
ODOR THRESHOLD:	Not established	RELATIVE DENSITY@20°C (water=1):	0.95 - 1.10
pH:	3.0 - 6.5	SOLUBILITY IN WATER:	Complete
MELTING/FREEZING POINT:	NA	PARTITION COEFFICIENT(n-octanol/water)	Not established
BOILING POINT:	100°C (212°F)	AUTOIGNITION TEMPERATURE:	Not applicable
FLASHPOINT:	Non-flammable	DECOMPOSITION TEMPERATURE:	Not established
EVAPORATION RATE (n-BuAc=1):	< 1	VISCOSITY:	Not established
FLAMMABILITY (SOLID/GAS):	Not applicable	VOLATILE ORGANIC COMPOUNDS (%):	None
FLAMMABLE LIMITS (in air by volume, %):	Not applicable		

**SECTION 10 - STABILITY AND REACTIVITY**

**REACTIVITY:** Product is not reactive under standard ambient temperature and pressure.

**STABILITY:** Stable under normal condition of use and storage.

**POSSIBILITY OF**

**HAZARDOUS REACTIONS:** None known.

**CONDITIONS TO AVOID:** See incompatible materials.

**INCOMPATIBLE MATERIALS:** Oxidizing agents, reducing agents, amines, mercaptans.

**HAZARDOUS**

**DECOMPOSITION PRODUCTS:** Thermal decomposition may yield the following: Hydrogen chloride, oxides of sulfur and nitrogen.

**SECTION 11 - TOXICOLOGICAL INFORMATION**

**TOXICOLOGICAL EFFECTS:** No data available for this product.

**LIKELY ROUTES OF EXPOSURE:** Skin/eye contact and inhalation. The most significant routes of overexposure for this product are by inhalation of mists or contact with skin or eyes.

**RELATED SYMPTOMS:** Skin, eye, respiratory and gastrointestinal irritation. May be harmful if swallowed.

**DELAYED/IMMEDIATE/CHRONIC EFFECTS FROM SHORT AND LONG TERM EXPOSURES:**

**ACUTE:** Contact with skin and eyes will cause burning and irritation. Do not wear contact lenses when using this product. Ingestion will cause gastric distress and possible depression of the central nervous system.

**CHRONIC:** Repeated or prolonged exposure to this product can produce target organ damage. Repeated exposure of the eyes can produce eye irritation. Repeated skin exposure can produce local skin destruction, or dermatitis. Repeated inhalation can produce varying degrees of respiratory irritation or lung damage.

**NUMERICAL MEASURES OF TOXICITY:**

Ceriodaphnia dubia (waterflea): 48hr, LC50s: 8.77 ppm

Ceriodaphnia dubia (waterflea): 96hr, LC50s: 7.88 ppm

Pimephales promelas (fathead minnow): 48hr, LC50s: 9.84 ppm

Pimephales promelas (fathead minnow): 96hr, LC50s: 9.56 ppm

**IRRITANCY OF PRODUCT:** This product is very irritating to skin, eyes and respiratory system.

**SENSITIZATION TO THE PRODUCT:** This product may cause allergic skin reactions (e.g., rashes, welts) in sensitive individuals.

**CARCINOGENICITY:** None of the components of this product are listed by the NTP, IARC, or regulated by OSHA as carcinogens.

**SECTION 12 - ECOLOGICAL INFORMATION**

**ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.**

**ECOTOXICITY:** Release of this product to the environment is expected to cause harm to plants and animals. If accidentally released, precautions must be taken to protect the environment.

**PERSISTENCE AND DEGRADABILITY:** Material is considered biodegradeable.

**BIOLOGICAL ACCUMULATION POTENTIAL:** No data available for this product.

**MOBILITY IN SOIL:** No data available for this product.

**OTHER ADVERSE EFFECTS (i.e., hazardous to the ozone layer):** No data available for this product.

**Environmental Hazards:**

This pesticide is toxic to aquatic plants, fish and aquatic invertebrates. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA. Do not contaminate water by cleaning of equipment or disposal of waste. Apply this pesticide only as specified on the label.

**BIOLOGICAL EXPOSURE INDICES:** Currently, Biological Exposure Indices (BEIs) have not been determined for the components of this product.

**SECTION 13 - DISPOSAL CONSIDERATIONS**

**DISPOSAL:** Thoroughly drain/empty containers and offer for recycling. Refer to Section 8 for exposure controls - personal protection. P501: Dispose of contents/container in accordance with local/regional/national/international regulations.

**SECTION 14 - TRANSPORTATION INFORMATION**

**PROPER SHIPPING NAME**

**DOT:** UN3265, CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.  
 (5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE), 8, PG II  
 Emergency Response Guidebook, Guide No.: 153  
 Passenger Aircraft Qty: 1L  
 Cargo Aircraft Qty: 30L



**IMDG/IMO:** UN3265, CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.  
 (5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE), 8, PG II

**IATA/ICAO:** UN3265, CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.  
 (5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE), 8, PG II

**ENVIRONMENTAL HAZARDS**

(i.e., **MARINE POLLUTANT**): None known.

**TRANSPORT IN BULK (according to annex II marpol 73/78 and the IBC code):** Not applicable.

**SPECIAL PRECAUTIONS FOR USER:** None known.

PRODUCT REQUIRES CORROSIVE LABEL

**SECTION 15 - REGULATORY INFORMATION**

**United States and International Regulations**

**United States Regulations: U.S. SARA REPORTING REQUIREMENTS:** The components of this product are subject to the reporting as listed below, requirements of Sections 302, 304, and 313 of Title of the Superfund Amendments and Reauthorization Act:

**CHEMICAL NAME**

MAGNESIUM NITRATE	SARA 302 (40 CFR 355, Appendix A) - NO SARA 304 (40 CFR Table 302.4) - NO SARA 313 (40 CFR 372.65) - YES
5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE	SARA 302 (40 CFR 355, Appendix A) - NO SARA 304 (40 CFR Table 302.4) - NO SARA 313 (40 CFR 372.65) - NO
2-METHYL-4-ISOTHIAZOLIN-3-ONE	SARA 302 (40 CFR 355, Appendix A) - NO SARA 304 (40 CFR Table 302.4) - NO SARA 313 (40 CFR 372.65) - NO
MAGNESIUM CHLORIDE	SARA 302 (40 CFR 355, Appendix A) - NO SARA 304 (40 CFR Table 302.4) - NO SARA 313 (40 CFR 372.65) - NO

**U.S. Regulations**

U.S. SARA THRESHOLD PLANNING QUANTITY: There are no specific Threshold Planning Quantities for the components of this product. The default Federal SDS submission and inventory requirement filing threshold of 10,000 lbs (4,540 kg) therefore applies, per 40 CFR 370.20.  
 U.S. CERCLA REPORTABLE QUANTITY (RQ): Not listed.  
 TSCA INVENTORY STATUS: The components of this product are listed on the TSCA Inventory.  
 SARA TITLE III Section 311/312 Hazard Category: Acute: YES; Chronic: NO; Fire: NO; Reactive: NO; Sudden Release of Pressure: NO

**FIFRA Information**

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:



**DANGER. CORROSIVE.** Causes irreversible eye damage and skin burns. May cause allergic skin reaction. Harmful if swallowed or absorbed through the skin. Harmful if inhaled.

Do not get in eyes, on skin, or on clothing. Prolonged or frequently repeated skin contact may cause allergic reaction in some individuals. Remove contaminated clothing and wash clothing before reuse. Mixers, loaders and others exposed to this product must wear: long-sleeved shirt and long pants; chemical resistant gloves such as nitrile or butyl rubber; shoes plus socks; goggles and face shield; and chemical resistant apron. Discard clothing or other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry. Users should wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Users should remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Users should remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly.

**California Safe Drinking Water and Toxic Enforcement Act (Proposition 65):** No component of this product is on the Proposition 65 list.

**International Regulations**

CANADIAN REGULATIONS:

CANADIAN DSL/NDL INVENTORY STATUS: The components of this product are on the DSL Inventories or are exempt from listing.

CANADIAN WHMIS CLASSIFICATION: Not classified.

**SECTION 16 - OTHER INFORMATION**

**PREPARED BY: GARRATT CALLAHAN**

**DATE OF REVISION:** 2/11/2016 Supercedes: 6/16/2015

Formula 315 is EPA-registered; with EPA Reg. No. 8540-23. Refer to the approved label for details.

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user's intended purpose or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose.



## GC FORMULA 314-T



**SAFETY DATA SHEET**

**SECTION 1 - PRODUCT IDENTIFICATION**

PRODUCT NAME:	FORMULA 314-T
PRODUCT USE:	BIOCIDE
RESTRICTIONS ON USE:	Refer to label, available technical information, and other appropriate sections of this SDS.
UN NUMBER:	1479
PROPER SHIPPING NAME:	OXIDIZING SOLID, N.O.S. (1-BROMO-3-CHLORO-5,5-DIMETHYLHYDANTOIN), 5.1, PGII,
MANUFACTURER'S NAME:	Garratt-Callahan Company
ADDRESS:	50 Ingold Road, Burlingame, CA 94010-2206
EMERGENCY PHONE:	<b>North America: CHEMTREC: 1-800-424-9300</b> <b>Outside North America: +1-703-527-3887</b>
BUSINESS PHONE:	Product Information: 650-697-5811
SDS NUMBER:	SD3314
DATE OF REVISION:	6/11/2015

**SECTION 2 - HAZARDS IDENTIFICATION**

**SIGNAL WORD:** DANGER

**HAZARD STATEMENT:**

H270: May cause or intensify fire; oxidizer. 1  
 H302: Harmful if swallowed. 4  
 H314: Causes severe skin burns and eye damage. 1A  
 H335: May cause respiratory irritation. 3



**PRECAUTIONARY STATEMENTS: (PREVENTION)**

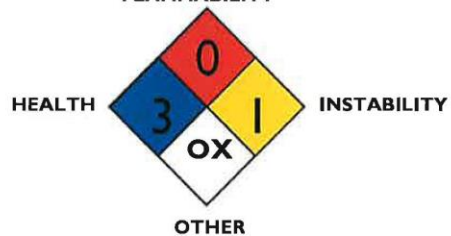
P101: If medical advice is needed, have product container or label at hand.  
 P102: Keep out of reach of children.  
 P103: Read label before use.  
 P220: Keep/Store away from clothing/combustible materials.  
 P244: Keep reduction valves free from grease and oil.  
 P260: Do not breathe dust/fume/gas/mist/vapours/spray.  
 P264: Wash all exposed skin/hair thoroughly after handling.  
 P270: Do not eat, drink or smoke when using this product.  
 P271: Use only outdoors or in a well-ventilated area.  
 P280: Wear protective gloves/protective clothing/eye protection/face protection.

**HAZARDOUS MATERIAL IDENTIFICATION SYSTEM**

HEALTH HAZARD (BLUE)	3
FLAMMABILITY HAZARD (RED)	0
REACTIVITY HAZARD (YELLOW)	1

Hazard Scale  
 0=Minimal  
 1=Slight  
 2=Moderate  
 3=Serious  
 4=Severe  
 \*=Chronic hazard

**NFPA RATING  
 FLAMMABILITY**



**SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS**

<b>Hazardous Ingredients</b>	<b>CAS#</b>	<b>EC#</b>	<b>ICSC#</b>	<b>WT %</b>
I-BROMO-3-CHLORO-5,5-DIMETHYL-HYDANTOIN	16079-88-2	240-230-0	NE	60 - 100

**SECTION 4 - FIRST AID MEASURES**

Exposed individuals must be taken for medical attention if any adverse effect occurs. Take a copy of this SDS to the health professional with the individual. P310: Immediately call a POISON CENTER or doctor/physician.

**DANGER:** Harmful if swallowed. Causes severe skin burns and eye damage. May cause respiratory irritation. Also refer to Section 11 for symptoms, effects, and likely routes of exposure for this product.

**TARGET ORGANS:**

**ACUTE:** irritation of skin, eyes, respiratory and gastrointestinal systems.  
**CHRONIC:** irritation of skin, eyes, respiratory and gastrointestinal systems.

**SKIN EXPOSURE:** P303+P361+P353: IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower. Minimum flushing time is for 15 minutes. Remove exposed or contaminated clothing, taking care not to contaminate the eyes. P363: Wash contaminated clothing before reuse. P310: Immediately call a POISON CENTER or doctor/physician.

**EYE EXPOSURE:** P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing. Use sufficient force to open the eyelids. Have the exposed individual "roll" their eyes. Minimum flushing time is for 15 minutes. P310: Immediately call a POISON CENTER or doctor/physician.

**INHALATION:** P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P312: Call a POISON CENTER or doctor/physician if you feel unwell.

**INGESTION:** P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P301+312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Never induce vomiting or give diluents (milk or water) by mouth to someone who is unconscious, having convulsions, or unable to swallow. P310: Immediately call a POISON CENTER or doctor/physician.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Skin and respiratory disorders, as well as conditions involving the "Target Organs" may be aggravated by prolonged exposures to this product. Exposed individual must seek immediate medical attention if any adverse effect occurs.

**NOTES TO PHYSICIAN:** Treat symptoms as demonstrated by signs and distress in the patient.

**SECTION 5 - FIRE FIGHTING MEASURES**

<b>SUITABLE (AND UNSUITABLE) EXTINGUISHING MATERIALS:</b>	Product is non-flammable. Water spray, fog or mist. Alcohol resistant foam. Do not use ammonium phosphate (ABC), other dry chemical extinguishers or CO2. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
<b>SPECIFIC HAZARDS ARISING FROM THE CHEMICAL:</b>	Oxidizing material. Forms explosive mixtures with combustible organic or other easily oxidizable materials. May release hydrogen bromide or bromine gas, nitrogen oxides, hydrogen chloride when wet. Fire causes formation of toxic gases, vapors of bromine, chlorine, oxides of nitrogen and/or carbon.
<b>SPECIAL PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIREFIGHTERS:</b>	Firefighters should wear fully protective clothing (chemical impermeable, fully encapsulated suit) and positive pressure self-contained breathing apparatus. Do not release run off from fire control methods to sewer or waterways. P370+P376: In case of fire: Stop leak if safe to do so.

**SECTION 6 - ACCIDENTAL RELEASE MEASURES**

**PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT, ENVIRONMENTAL PRECAUTIONS AND EMERGENCY PROCEDURES.**

**WARNING:** Any container expansion or rounding indicates pressure build-up. Use extreme caution. When opening, release pressure slowly through opening.

**SPILL AND LEAK RESPONSE:** Uncontrolled releases should be responded to by appropriately trained personnel using pre-planned procedures. Proper protective equipment should be used, refer to Section 8 - exposure controls.

**Small Spill:** Mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. P391: Collect spillage.

**Large Spill:** Restrict access to the area. Provide adequate protective equipment and ventilation. Stop leak if without risk. Remove chemicals which can react with the spilled material. Add dry inert material to contain and absorb spilled material. Prevent entry into surface waters, sewers, basements or confined areas, dike if needed. Avoid generation of dust. Avoid contact with water. Ensure that exposure to product is not at a concentration exceeding regulatory limits. Decontaminate the area thoroughly. Decontaminate all response equipment with soapy water before returning to service. Place all spill residue in a suitable container and seal. P391: Collect spillage.

**SECTION 7 - HANDLING AND STORAGE**

**PRECAUTIONS FOR SAFE HANDLING:** Keep out of reach of children. All employees who handle this material should be trained to handle it safely. Open containers slowly on a stable surface. As with all chemicals, avoid getting this product ON YOU or IN YOU. Avoid direct or prolonged contact with skin or eyes. Do not ingest. Wash thoroughly after handling this product. Do not eat, drink, smoke, or apply cosmetics while handling this product. Avoid breathing vapors, dusts or mists generated by this product. Use in a well-ventilated location. Remove contaminated clothing immediately. Use only as directed. Refer to Section 8 for exposure controls.

**CONDITIONS FOR SAFE STORAGE:** Containers of this product must be properly labeled. Storage areas of this product should be clearly identified, well-illuminated, clear of obstruction and accessible only to trained and authorized personnel. Store containers in a clean, cool, well ventilated, dry location, away from direct sunlight, away from incompatible materials at temperatures between 50°F (10°C) - 100°F (37°C). Keep container tightly closed when not in use. Avoid spilling, skin and eye contact. Avoid contact with acids, moisture or combustible materials. Keep away from heat, sparks and open flames. P405: Store locked up. Do not ingest. Do not breathe vapor mist. Wash hands after handling. Refer to Section 10 for incompatibilities. P403+P233: Store in a well ventilated place. Keep container tightly closed.

**SECTION 8 - EXPOSURE CONTROLS - PERSONAL PROTECTION**

**VENTILATION AND ENGINEERING CONTROLS:** Use with adequate ventilation. Eyewash/safety shower station is recommended to be available near where this product is used/stored.

**EXPOSURE LIMITS/GUIDELINES:**

**EXPOSURE LIMITS IN AIR**

CHEMICAL NAME	CAS#	ACGIH TLV		OSHA PEL	OTHER
		TWA	STEL	TWA	
I-BROMO-3-CHLORO-5,5-DIMETHYL-HYDANTOIN	16079-88-2	NE	NE	NE	N/A

NE = Not Established

**INGESTION:** P264: Wash all exposed skin/hair thoroughly after handling. P270: Do not eat, drink or smoke when using this product.

**RESPIRATORY PROTECTION:** P260: Do not breathe dust/fume/gas/mist/vapours/spray. P271: Use only outdoors or in a well-ventilated area. Maintain airborne contaminant concentrations below guidelines listed above, if applicable. Air-purifying respirators with dust/mist/fume/spray filters are recommended if operations may produce dusts, mists or sprays from this product with concentrations at or above levels posted above.

**EYE PROTECTION:** P264: Wash all exposed skin/hair thoroughly after handling. P280: Wear protective gloves/protective clothing/eye protection/face protection. Wear chemical safety goggles or safety glasses with side shields. A face shield may also be necessary for splash protection.

**SKIN PROTECTION:** P260: Do not breathe dust/fume/gas/mist/vapours/spray. P264: Wash all exposed skin/hair thoroughly after handling. P280: Wear protective gloves/protective clothing/eye protection/face protection. Use chemically-resistant gloves and skin protection, when handling this product. Use body protection appropriate for task (e.g., lab coat, overalls).



**SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES**

APPEARANCE and COLOR:	White to off-white tablet	VAPOR PRESSURE, mm Hg @ 20°C :	Not applicable
ODOR :	Slight odor Halogen	VAPOR DENSITY (Air=1):	Not applicable
ODOR THRESHOLD:	Not established	RELATIVE DENSITY@20°C (water=1):	0.96
pH:	3.5 @ 0.15%	SOLUBILITY IN WATER:	Low (0.15g/100g H2O @ 20°C)
MELTING/FREEZING POINT:	145-160°C	PARTITION COEFFICIENT(n-octanol/water):	Not established
BOILING POINT:	Not applicable	AUTOIGNITION TEMPERATURE:	Not established
FLASHPOINT:	Not established	DECOMPOSITION TEMPERATURE:	Not established
EVAPORATION RATE (n-BuAc=1):	Not applicable	VISCOSITY:	Not applicable
FLAMMABILITY (SOLID/GAS):	Not established	VOLATILE ORGANIC COMPOUNDS (%):	None
FLAMMABLE LIMITS (in air by volume, %):	Not established		

**SECTION 10 - STABILITY AND REACTIVITY**

**REACTIVITY:** Product is not reactive under standard ambient temperature and pressure. Avoid moisture.

**STABILITY:** Stable under normal condition of use and storage. Avoid moisture.

**POSSIBILITY OF**

**HAZARDOUS REACTIONS:** None known.

**CONDITIONS TO AVOID:** Avoid contact with oxidizers or reducing agents. Avoid contact with acids and alkalies. Avoid heat, flames and other sources of ignition. Avoid moisture.

**INCOMPATIBLE MATERIALS:** Strong acids, strong alkalies, strong oxides, strong reducing agents.

**HAZARDOUS**

**DECOMPOSITION PRODUCTS:** Toxic gases/vapors/fumes of: Hydrogen bromide, Bromine, Hydrogen chloride, Chlorine, oxides of Carbon, Nitrogen.

**SECTION 11 - TOXICOLOGICAL INFORMATION**

**TOXICOLOGICAL EFFECTS:** Oral: LD50: rats, 578 mg/kg  
 Dermal: LD50: rabbits, 2000mg/kg  
 Ames test: Negative

**LIKELY ROUTES OF EXPOSURE:** Skin/eye contact and inhalation.

**RELATED SYMPTOMS:** Skin, eye, respiratory and gastrointestinal irritation. Harmful or burns if swallowed.

**DELAYED/IMMEDIATE/CHRONIC EFFECTS FROM SHORT AND**

**LONG TERM EXPOSURES:** Skin, eye, respiratory and gastrointestinal irritation. Harmful or burns if swallowed.

**NUMERICAL MEASURES OF**

**TOXICITY:** Not established for this product.

**CARCINOGENICITY:** None of the components of this product are listed by the NTP, IARC, or regulated by OSHA as carcinogens.

**SECTION 12 - ECOLOGICAL INFORMATION**

**ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.**

**ECOTOXICITY:**

Fish: LC50: 96 hr = 0.87 mg/l  
 Daphnia: LC50: 48 hr = 0.46 mg/l  
 Acute Toxicity : LC50: 96hours, 640 mg/l American Oyster  
 Chemical oxygen demand: 1.005 g/g.

**PERSISTANCE AND DEGRADABILITY:** No data available for this product.

**BIOLOGICAL ACCUMULATION POTENTIAL:** Material is expected to present a low bioaccumulation potential.

**MOBILITY IN SOIL:** No data available for this product.

**OTHER ADVERSE EFFECTS (i.e., hazardous to the ozone layer):** No data available for this product.

**Environmental Hazards:**

This pesticide is toxic to fish and aquatic organisms. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product into sewer systems without previously notifying the local sewage treatment plant authority. For guidance, contact your State Water Board or Regional Office of the EPA.

**BIOLOGICAL EXPOSURE INDICES:** Currently, Biological Exposure Indices (BEIs) have not been determined for this product.

**SECTION 13 - DISPOSAL CONSIDERATIONS**

**DISPOSAL:** P501: Dispose of contents/container in accordance with local/regional/national/international regulations. Rinse empty containers with water and use the rinse water to prepare the working solution. Refer to Section 8 for exposure controls - personal protection.

**SECTION 14 - TRANSPORTATION INFORMATION**

**PROPER SHIPPING NAME**

**DOT:** UN1479, OXIDIZING SOLID, N.O.S. (1-BROMO-3-CHLORO-5,5-DIMETHYLHYDANTOIN), 5.1, PGII,  
Emergency Response Guidebook, Guide No.: 140  
Passenger Aircraft Qty: 5kg  
Cargo Aircraft Qty: 25kg

**IMDG/IMO:** UN1479, OXIDIZING SOLID, N.O.S. (1-BROMO-3-CHLORO-5,5-DIMETHYLHYDANTOIN), 5.1, PGII,

**IATA/ICAO:** UN1479, OXIDIZING SOLID, N.O.S. (1-BROMO-3-CHLORO-5,5-DIMETHYLHYDANTOIN), 5.1, PGII,



**ENVIRONMENTAL HAZARDS**

(i.e., **MARINE POLLUTANT**): None known.

**TRANSPORT IN BULK (according to annex II marpol 73/78 and the IBC code):** Not applicable.

**SPECIAL PRECAUTIONS FOR USER:** None known.

PRODUCT REQUIRES OXIDIZER LABEL

**SECTION 15 - REGULATORY INFORMATION**

**United States and International Regulations**

**United States Regulations: U.S. SARA REPORTING REQUIREMENTS:** The components of this product are subject to the reporting as listed below, requirements of Sections 302, 304, and 313 of Title of the Superfund Amendments and Reauthorization Act:

**CHEMICAL NAME**

I-BROMO-3-CHLORO-5,5-DIMETHYLHYDANTOIN	SARA 302 (40CFR 355, APPENDIX A) - NO SARA 304 (40CFR TABLE 302.4) - NO SARA 313 (40CFR 372.65) - NO
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**U.S. Regulations**

**U.S. SARA THRESHOLD PLANNING QUANTITY:** There are no specific Threshold Planning Quantities for the components of this product. The default Federal SDS submission and inventory requirement filing threshold of 10,000 lbs (4,540 kg) therefore applies, per 40 CFR 370.20.

**U.S. CERCLA REPORTABLE QUANTITY (RQ):** Not listed.

**U.S. TSCA INVENTORY STATUS:** The components of this product are listed on the TSCA Inventory.

**SARA TITLE 311/312 HAZARD CATEGORY:** ACUTE: YES CHRONIC: NO FIRE: YES REACTIVITY: NO PRESSURE: NO

**California Safe Drinking Water and Toxic Enforcement Act (proposition 65):** No component of this product is on the Proposition 65 list.

**FIFRA Information:**

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

**DANGER. CORROSIVE.** Causes irreversible eye damage and skin burns. Harmful if swallowed. Irritating to nose and throat. Do not get in eyes, on skin, or on clothing. Wear protective eyewear (goggles, face shield, or safety glasses). Wear protective clothing and rubber gloves when handling this product. Avoid breathing dust and fumes. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash clothing before reuse.

**International Regulations**

**CANADIAN REGULATIONS:**

**CANADIAN DSL/NDSL INVENTORY STATUS:** The components of this product are on the DSL or NDSL Inventories or are exempt from listing.

**CANADIAN WHMIS CLASSIFICATION:** Not listed.

**SECTION 16 - OTHER INFORMATION**

**PREPARED BY: GARRATT CALLAHAN**

**DATE OF REVISION:** 6/11/2015      Supercedes: 11/7/2014

Formula 314-T is EPA-registered; with EPA Reg. No. 83451-4-8540. Refer to the approved label for details.

Formula 314-T is registered with the NSF to the NSF International Registration Guidelines for Proprietary Substances and Nonfood Compounds for category codes G5, G7; with NSF Reg. No. 113139.

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user's intended purpose or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose.

# FORMULA 2011





**SAFETY DATA SHEET**

**SECTION 1 - PRODUCT IDENTIFICATION**

PRODUCT NAME: FORMULA 2011-LT  
 PRODUCT USE: COOLING WATER TREATMENT  
 RESTRICTIONS ON USE: Refer to label, available technical information, and other appropriate sections of this SDS.  
 UN NUMBER: NOT REGULATED  
 PROPER SHIPPING NAME: NOT REGULATED  
 MANUFACTURER'S NAME: Garratt-Callahan Company  
 ADDRESS: 50 Ingold Road, Burlingame, CA 94010-2206  
 EMERGENCY PHONE: **North America: CHEMTREC: 1-800-424-9300**  
**Outside North America: +1-703-527-3887**  
 BUSINESS PHONE: Product Information: 650-697-5811  
 SDS NUMBER: SD2011LT  
 DATE OF REVISION: 5/17/2018

**SECTION 2 - HAZARDS IDENTIFICATION**

**SIGNAL WORD:** WARNING

**HAZARD STATEMENT:**

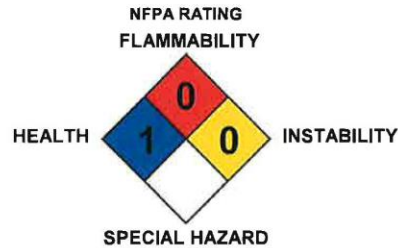
- H290: May be corrosive to metals. 1
- H303: May be harmful if swallowed.
- H316: Causes mild skin irritation. 3
- H320: Causes eye irritation. 2B
- H333: May be harmful if inhaled. 5
- H413: May cause long lasting harmful effects to aquatic life. 4

**PRECAUTIONARY STATEMENTS: (PREVENTION)**

- P101: If medical advice is needed, have product container or label at hand.
- P102: Keep out of reach of children.
- P103: Read label before use.
- P234: Keep only in original packaging.
- P264: Wash all exposed skin/hair thoroughly after handling.
- P273: Avoid release to the environment.

**HAZARDOUS MATERIAL IDENTIFICATION SYSTEM**

HEALTH HAZARD (BLUE)	1	Hazard Scale 0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe *=Chronic hazard
FLAMMABILITY HAZARD (RED)	0	
PHYSICAL HAZARD (YELLOW)	0	
PERSONAL PROTECTION		



**SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS**

<u>Hazardous Ingredients</u>	<u>CAS#</u>	<u>EC#</u>	<u>ICSC#</u>	<u>WT %</u>
PHOSPHONOBUTANE TRICARBOXYLIC ACID	37971-36-1	253-733-5	NE	< 3
BENZOTRIAZOLE	95-14-7	202-394-1	1091	< 3
PHOSPHINOCARBOXYLIC ACID	71050-62-9	NA	NA	< 3

**SECTION 4 - FIRST AID MEASURES**

Exposed individuals must be taken for medical attention if any adverse effect occurs. Take a copy of this SDS to the health professional with the individual.

**WARNING:** May be corrosive to metals. May be harmful if swallowed. Causes mild skin irritation. Causes eye irritation. May be harmful if inhaled. May cause long lasting harmful effects to aquatic life. Also refer to Section 11 for symptoms, effects, and likely routes of exposure for this product.

**TARGET ORGANS:**

**ACUTE:** irritation of skin, eyes, respiratory and gastrointestinal systems.

**CHRONIC:** irritation of skin, eyes, respiratory and gastrointestinal systems.

**SKIN EXPOSURE:** IF ON SKIN: Wash with soap and water. Minimum rinsing time is for 15 minutes. Take off contaminated clothing and wash before reuse. P332+P313: If skin irritation occurs: Get medical advice/attention.

**EYE EXPOSURE:** P305+P351+P338: IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing. Use sufficient force to open the eyelids. Have the exposed individual "roll" their eyes. Minimum rinsing time is for 15 minutes. P337+P313: If eye irritation persists: Get medical advice/attention.

**INHALATION:** P304+P312: IF INHALED: Call a POISON CENTER/doctor/ if you feel unwell.

**INGESTION: IF SWALLOWED:** P301+P312: IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell. Rinse mouth. Do NOT induce vomiting. Never induce vomiting or give diluents (milk or water) by mouth to someone who is unconscious, having convulsions, or unable to swallow.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Skin and respiratory disorders, as well as conditions involving the "Target Organs" may be aggravated by prolonged exposures to this product. Exposed individual must seek immediate medical attention if any adverse effect occurs.

**NOTES TO PHYSICIAN:** Treat symptoms as demonstrated by signs and distress in the patient.

**SECTION 5 - FIRE FIGHTING MEASURES**

<b>SUITABLE (AND UNSUITABLE) EXTINGUISHING MATERIALS:</b>	Use media appropriate for the surrounding fire.
<b>SPECIFIC HAZARDS ARISING FROM THE CHEMICAL:</b>	No unusual hazards
<b>SPECIAL PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIREFIGHTERS:</b>	Firefighters should wear fully protective clothing (chemical impermeable, fully encapsulated suit) and positive pressure self-contained breathing apparatus. Do not release run off from fire control methods to sewer or waterways..

**SECTION 6 - ACCIDENTAL RELEASE MEASURES**

**PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT, ENVIRONMENTAL PRECAUTIONS AND EMERGENCY PROCEDURES.**

**WARNING:** Any container expansion or rounding indicates pressure build-up. Use extreme caution. When opening, release pressure slowly through opening.

**SPILL AND LEAK RESPONSE:** Uncontrolled releases should be responded to by appropriately trained personnel using pre-planned procedures. Proper protective equipment should be used, refer to Section 8 - exposure controls. P391: Collect spillage. P273: Avoid release to the environment. P390: Absorb spillage to prevent material-damage.

**Small Spill:** Mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

**Large Spill:** Restrict access to the area. Provide adequate protective equipment and ventilation. Stop leak if without risk. Remove chemicals which can react with the spilled material. Prevent entry into surface waters, sewers, basements or confined areas, dike if needed. Ensure that exposure to product is not at a concentration exceeding regulatory limits. Decontaminate the area thoroughly. Decontaminate all response equipment with soapy water before returning to service. Place all spill residue in a suitable container and seal.

**SECTION 7 - HANDLING AND STORAGE**

**PRECAUTIONS FOR SAFE HANDLING:** Keep out of reach of children. All employees who handle this material should be trained to handle it safely. Open containers slowly on a stable surface. As with all chemicals, avoid getting this product ON YOU or IN YOU. Avoid direct or prolonged contact with skin or eyes. Do not ingest. Wash thoroughly after handling this product. Do not eat, drink, smoke, or apply cosmetics while handling this product. Avoid breathing vapors, dusts or mists generated by this product. Use in a well-ventilated location. Remove contaminated clothing immediately. Use only as directed. Refer to Section 8 for exposure controls. P273: Avoid release to the environment.

**CONDITIONS FOR SAFE STORAGE:** Containers of this product must be properly labeled. Storage areas of this product should be clearly identified, well-illuminated, clear of obstruction and accessible only to trained and authorized personnel. Store containers in a clean, cool, well ventilated, dry location, away from direct sunlight, away from incompatible materials at temperatures between 50°F (10°C) - 100°F (37°C). Keep container tightly closed when not in use. P405: Store locked up. Do not ingest. Do not breathe vapor mist. Wash hands after handling. Refer to Section 10 for incompatibilities. P234: Keep only in original packaging. P406: Store in corrosion resistant container with a resistant inner liner.

**SECTION 8 - EXPOSURE CONTROLS - PERSONAL PROTECTION**

**VENTILATION AND ENGINEERING CONTROLS:** Use with adequate ventilation. Eyewash/safety shower station is recommended to be available near where this product is used/stored.

**EXPOSURE LIMITS/GUIDELINES:**

**EXPOSURE LIMITS IN AIR**

CHEMICAL NAME	CAS#	ACGIH TLV		OSHA PEL	OTHER
		TWA	STEL	TWA	
PHOSPHONOBUTANE TRICARBOXYLIC ACID	37971-36-1	NE	NE	NE	N/A
BENZOTRIAZOLE	95-14-7	NE	NE	NE	N/A
PHOSPHINOCARBOXYLIC ACID	71050-62-9	NE	NE	NE	N/A

NE = Not Established

**INGESTION:** Do not eat, drink, smoke, or apply cosmetics when handling this product. Wash all exposed skin/hair thoroughly after handling.

**RESPIRATORY PROTECTION:** Avoid breathing dust/fume/gas/mist/vapours/spray. Use only outdoors or in a well ventilated area. Maintain airborne contaminant concentrations below guidelines listed above, if applicable. Air-purifying respirators with dust/mist/fume/spray filters are recommended if operations may produce dusts, mists or sprays from this product with concentrations at or above levels posted above.

**EYE PROTECTION:** P264: Wash all exposed skin/hair thoroughly after handling. Wear chemical safety goggles or safety glasses with side shields. A face shield may also be necessary for splash protection.

**SKIN PROTECTION:** Wash all exposed skin/hair thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection. Use chemically-resistant gloves and skin protection, when handling this product. Use body protection appropriate for task (e.g., lab coat, overalls).

WATER TREATMENT EXPERTISE SINCE 1904

FORMULA 2011-LT

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**SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES**

APPEARANCE and COLOR:	Clear yellow liquid	VAPOR PRESSURE, mm Hg @ 20°C:	Not determined
ODOR :	Odorless	VAPOR DENSITY (Air=1):	Not determined
ODOR THRESHOLD:	Not established	RELATIVE DENSITY@20°C (water=1):	1.11 - 1.13
pH:	2.0 - 4.0	SOLUBILITY IN WATER:	Complete
MELTING/FREEZING POINT:	NA	PARTITION COEFFICIENT(n-octanol/water):	Not established
BOILING POINT:	> 212 °F (100 °C)	AUTOIGNITION TEMPERATURE:	Not established
FLASHPOINT:	Non-flammable	DECOMPOSITION TEMPERATURE:	Not established
EVAPORATION RATE (n-BuAc=1):	Not established	VISCOSITY:	Not established
FLAMMABILITY (SOLID/GAS):	Not established	VOLATILE ORGANIC COMPOUNDS (%):	Not established
FLAMMABLE LIMITS (in air by volume, %):	Not established		

**SECTION 10 - STABILITY AND REACTIVITY**

**REACTIVITY:** Not established.  
**STABILITY:** Stable under normal condition of use and storage.  
**POSSIBILITY OF HAZARDOUS REACTIONS:** Will not occur.  
**CONDITIONS TO AVOID:** Not established.  
**INCOMPATIBLE MATERIALS:** Strong bases.  
**HAZARDOUS DECOMPOSITION PRODUCTS:** When heated to decomposition, product may emit toxic fumes of oxides of carbon, nitrogen, phosphorous and sulfur.

**SECTION 11 - TOXICOLOGICAL INFORMATION**

**TOXICOLOGICAL EFFECTS:** No data available for this product.  
**LIKELY ROUTES OF EXPOSURE:** Skin, eye contact and inhalation.  
**RELATED SYMPTOMS:** Skin, eye, respiratory and gastrointestinal irritation. May be harmful if swallowed.  
**DELAYED/IMMEDIATE/CHRONIC EFFECTS FROM SHORT AND LONG TERM EXPOSURES:** Skin, eye, respiratory and gastrointestinal irritation. May be harmful if swallowed.  
**NUMERICAL MEASURES OF TOXICITY:** Not established for this product.  
  
**CARCINOGENICITY:** None of the components of this product are listed by the NTP, IARC, or regulated by OSHA AS carcinogens.

**SECTION 12 - ECOLOGICAL INFORMATION**

**ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.**  
**ECOTOXICITY:** Water Flea 48 hr LC50: 7071 ppm  
 Fathead Minnow 96 hr LC50: 5359 ppm  
**PERSISTENCE AND DEGRADABILITY:** No data available for this product.  
**BIOLOGICAL ACCUMULATION POTENTIAL:** No data available for this product.  
**MOBILITY IN SOIL:** No data available for this product.  
**OTHER ADVERSE EFFECTS (i.e., hazardous to the ozone layer):** No data available for this product.  
  
**BIOLOGICAL EXPOSURE INDICES:** Currently, Biological Exposure Indices (BEIs) have not been determined for the components of this product.

**SECTION 13 - DISPOSAL CONSIDERATIONS**

**DISPOSAL:** Thoroughly drain/empty containers and offer for recycling. Refer to Section 8 for exposure controls - personal protection. P501: Dispose of contents/container in accordance with local/regional/national/international regulations.



# Industrial and Sanitary Outfalls 2019 NPDES Permit Re-Application Outfall 04A022 Fact Sheet

Science and Technology Operations (STO)  
TA-3-66 Cooling Water and Roof Drains



## Revision Log

<u>Revision No.</u>	<u>Date</u>	<u>Page Nos.</u>	<u>Change Description</u>
<u>0</u>	<u>3/19/2019</u>	<u>NA</u>	<u>Original</u>
<u>1</u>	<u>7/31/2019</u>	<u>Attachment D, page D-5</u>	<u>Revised Gross Alpha to "Adjusted Gross Alpha."</u>
		<u>Attachment E, page E-4</u>	<u>Replaced the MSDS for Formula 2011 with the current SDS.</u>
		<u>Attachment E, page E-10</u>	<u>Replaced the MSDS for GC Formula 314-T with the current SDS.</u>
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

OUTFALL No.	TA - Bldg.	Year	Monitoring Period	Parameter	Quantity or Loading			Quality or Concentration								
					Average	Maximum	Units	Minimum	Average	Maximum	Units	Permit Limit	Units	Number of Samples	Frequency	Notes
04A022	TA3-66	2016	Mar	Total Suspended Solids				****	1.8	1.8	mg/L	30 - 100	mg/L	1	Quarterly	Required by Permit
04A022	TA3-66	2016	Jun	Total Suspended Solids				****	<0.57	<0.57	mg/L	30 - 100	mg/L	1	Quarterly	Required by Permit
04A022	TA3-66	2016	Sept	Total Suspended Solids				****	<5.7	<5.7	mg/L	30 - 100	mg/L	1	Quarterly	Required by Permit
04A022	TA3-66	2016	Dec	Total Suspended Solids					<0.826	<0.826	mg/L	30 - 100	mg/L	1	Quarterly	Required by Permit
04A022	TA3-66	2017	Mar	Total Suspended Solids				****	13.4	13.4	mg/L	30 - 100	mg/L	1	Quarterly	Required by Permit
04A022	TA3-66	2017	Jun	Total Suspended Solids				****	4.22	4.22	mg/L	30 - 100	mg/L	1	Quarterly	Required by Permit
04A022	TA3-66	2017	Sept	Total Suspended Solids				****	<0.604	<0.638	mg/L	30 - 100	mg/L	2	Quarterly	Required by Permit
04A022	TA3-66	2017	Dec	Total Suspended Solids				****	<0.57	<0.57	mg/L	30 - 100	mg/L	1	Quarterly	Required by Permit
04A022	TA3-66	2018	Mar	Total Suspended Solids				****			mg/L	30 - 100	mg/L	1	Quarterly	Required by Permit
04A022	TA3-66	2018	Jun	Total Suspended Solids				****	2.8	2.8	mg/L	30 - 100	mg/L	1	Quarterly	Required by Permit
04A022	TA3-66	2018	Sept	Total Suspended Solids				****	<0.57	<0.57	mg/L	30 - 100	mg/L	1	Quarterly	Required by Permit
<b>Total Suspended Solids</b>					<b>Daily Average</b>				<b>3.6</b>					<b>18</b>		
<b>Total Suspended Solids</b>					<b>Maximum 30 Day Average</b>				<b>13.4</b>					<b>18</b>		
<b>Total Suspended Solids</b>					<b>Daily Maximum</b>					<b>13.4</b>				<b>18</b>		
04A022	TA3-66	2016	Sept	Aluminum, Total				****	<0.015	<0.015	mg/L	NA	NA	1	Term	Required by Permit
<b>Aluminum, Total</b>					<b>Daily Average</b>									<b>1</b>		
<b>Aluminum, Total</b>					<b>Maximum 30 Day Average</b>				<b>0</b>					<b>1</b>		
<b>Aluminum, Total</b>					<b>Daily Maximum</b>					<b>0</b>				<b>1</b>		
04A022	TA3-66	2015	Sept	Copper, Dissolved				****	0.01310	0.01310	mg/L	NA	NA	1	Term	Required by Permit
04A022	TA3-66	2016	Sept	Copper, Dissolved				****	****	****	mg/L	NA	NA	0	Term	NA
04A022	TA3-66	2017	Sept	Copper, Dissolved				****	0.05650	0.10000	mg/L	NA	NA	2	Term	NA
04A022	TA3-66	2018	Sept	Copper, Dissolved				****	****	****	mg/L	NA	NA	0	Term	NA
<b>Copper, Dissolved</b>					<b>Daily Average</b>				<b>0.0348</b>					<b>0</b>		
<b>Copper, Dissolved</b>					<b>Maximum 30 Day Average</b>				<b>0.05650</b>					<b>0</b>		
<b>Copper, Dissolved</b>					<b>Daily Maximum</b>					<b>0.10000</b>				<b>0</b>		
04A022	TA3-66	2016	Sept	Adjusted Gross Alpha				****	0	0	pCi/L	NA	NA	1	Term	Required by Permit
<b>Adjusted Gross Alpha</b>					<b>Daily Average</b>									<b>1</b>		
<b>Adjusted Gross Alpha</b>					<b>Maximum 30 Day Average</b>				<b>0</b>					<b>1</b>		
<b>Adjusted Gross Alpha</b>					<b>Daily Maximum</b>					<b>0</b>				<b>1</b>		

# FORMULA 2011





**SAFETY DATA SHEET**

**SECTION 1 - PRODUCT IDENTIFICATION**

PRODUCT NAME: FORMULA 2011-LT  
 PRODUCT USE: COOLING WATER TREATMENT  
 RESTRICTIONS ON USE: Refer to label, available technical information, and other appropriate sections of this SDS.  
 UN NUMBER: NOT REGULATED  
 PROPER SHIPPING NAME: NOT REGULATED  
 MANUFACTURER'S NAME: Garratt-Callahan Company  
 ADDRESS: 50 Ingold Road, Burlingame, CA 94010-2206  
 EMERGENCY PHONE: **North America: CHEMTREC: 1-800-424-9300**  
**Outside North America: +1-703-527-3887**  
 BUSINESS PHONE: Product Information: 650-697-5811  
 SDS NUMBER: SD2011LT  
 DATE OF REVISION: 5/17/2018

**SECTION 2 - HAZARDS IDENTIFICATION**

**SIGNAL WORD:** WARNING

**HAZARD STATEMENT:**

- H290: May be corrosive to metals. 1
- H303: May be harmful if swallowed.
- H316: Causes mild skin irritation. 3
- H320: Causes eye irritation. 2B
- H333: May be harmful if inhaled. 5
- H413: May cause long lasting harmful effects to aquatic life. 4

**PRECAUTIONARY STATEMENTS: (PREVENTION)**

- P101: If medical advice is needed, have product container or label at hand.
- P102: Keep out of reach of children.
- P103: Read label before use.
- P234: Keep only in original packaging.
- P264: Wash all exposed skin/hair thoroughly after handling.
- P273: Avoid release to the environment.

**HAZARDOUS MATERIAL IDENTIFICATION SYSTEM**

HEALTH HAZARD (BLUE)	1	Hazard Scale 0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe *=Chronic hazard
FLAMMABILITY HAZARD (RED)	0	
PHYSICAL HAZARD (YELLOW)	0	
PERSONAL PROTECTION		



**SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS**

<u>Hazardous Ingredients</u>	<u>CAS#</u>	<u>EC#</u>	<u>ICSC#</u>	<u>WT %</u>
PHOSPHONOBUTANE TRICARBOXYLIC ACID	37971-36-1	253-733-5	NE	< 3
BENZOTRIAZOLE	95-14-7	202-394-1	1091	< 3
PHOSPHINOCARBOXYLIC ACID	71050-62-9	NA	NA	< 3

**SECTION 4 - FIRST AID MEASURES**

Exposed individuals must be taken for medical attention if any adverse effect occurs. Take a copy of this SDS to the health professional with the individual.

**WARNING:** May be corrosive to metals. May be harmful if swallowed. Causes mild skin irritation. Causes eye irritation. May be harmful if inhaled. May cause long lasting harmful effects to aquatic life. Also refer to Section 11 for symptoms, effects, and likely routes of exposure for this product.

**TARGET ORGANS:**

**ACUTE:** irritation of skin, eyes, respiratory and gastrointestinal systems.  
**CHRONIC:** irritation of skin, eyes, respiratory and gastrointestinal systems.

**SKIN EXPOSURE:** IF ON SKIN: Wash with soap and water. Minimum rinsing time is for 15 minutes. Take off contaminated clothing and wash before reuse. P332+P313: If skin irritation occurs: Get medical advice/attention.

**EYE EXPOSURE:** P305+P351+P338: IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing. Use sufficient force to open the eyelids. Have the exposed individual "roll" their eyes. Minimum rinsing time is for 15 minutes. P337+P313: If eye irritation persists: Get medical advice/attention.

**INHALATION:** P304+P312: IF INHALED: Call a POISON CENTER/doctor/ if you feel unwell.

**INGESTION: IF SWALLOWED:** P301+P312: IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell. Rinse mouth. Do NOT induce vomiting. Never induce vomiting or give diluents (milk or water) by mouth to someone who is unconscious, having convulsions, or unable to swallow.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Skin and respiratory disorders, as well as conditions involving the "Target Organs" may be aggravated by prolonged exposures to this product. Exposed individual must seek immediate medical attention if any adverse effect occurs.

**NOTES TO PHYSICIAN:** Treat symptoms as demonstrated by signs and distress in the patient.

**SECTION 5 - FIRE FIGHTING MEASURES**

<b>SUITABLE (AND UNSUITABLE) EXTINGUISHING MATERIALS:</b>	Use media appropriate for the surrounding fire.
<b>SPECIFIC HAZARDS ARISING FROM THE CHEMICAL:</b>	No unusual hazards
<b>SPECIAL PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIREFIGHTERS:</b>	Firefighters should wear fully protective clothing (chemical impermeable, fully encapsulated suit) and positive pressure self-contained breathing apparatus. Do not release run off from fire control methods to sewer or waterways..





**SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES**

APPEARANCE and COLOR:	Clear yellow liquid	VAPOR PRESSURE, mm Hg @ 20°C:	Not determined
ODOR :	Odorless	VAPOR DENSITY (Air=1):	Not determined
ODOR THRESHOLD:	Not established	RELATIVE DENSITY@20°C (water=1):	1.11 - 1.13
pH:	2.0 - 4.0	SOLUBILITY IN WATER:	Complete
MELTING/FREEZING POINT:	NA	PARTITION COEFFICIENT(n-octanol/water):	Not established
BOILING POINT:	> 212 °F (100 °C)	AUTOIGNITION TEMPERATURE:	Not established
FLASHPOINT:	Non-flammable	DECOMPOSITION TEMPERATURE:	Not established
EVAPORATION RATE (n-BuAc=1):	Not established	VISCOSITY:	Not established
FLAMMABILITY (SOLID/GAS):	Not established	VOLATILE ORGANIC COMPOUNDS (%):	Not established
FLAMMABLE LIMITS (in air by volume, %):	Not established		

**SECTION 10 - STABILITY AND REACTIVITY**

**REACTIVITY:** Not established.  
**STABILITY:** Stable under normal condition of use and storage.  
**POSSIBILITY OF HAZARDOUS REACTIONS:** Will not occur.  
**CONDITIONS TO AVOID:** Not established.  
**INCOMPATIBLE MATERIALS:** Strong bases.  
**HAZARDOUS DECOMPOSITION PRODUCTS:** When heated to decomposition, product may emit toxic fumes of oxides of carbon, nitrogen, phosphorous and sulfur.

**SECTION 11 - TOXICOLOGICAL INFORMATION**

**TOXICOLOGICAL EFFECTS:** No data available for this product.  
**LIKELY ROUTES OF EXPOSURE:** Skin, eye contact and inhalation.  
**RELATED SYMPTOMS:** Skin, eye, respiratory and gastrointestinal irritation. May be harmful if swallowed.  
**DELAYED/IMMEDIATE/CHRONIC EFFECTS FROM SHORT AND LONG TERM EXPOSURES:** Skin, eye, respiratory and gastrointestinal irritation. May be harmful if swallowed.  
**NUMERICAL MEASURES OF TOXICITY:** Not established for this product.  
  
**CARCINOGENICITY:** None of the components of this product are listed by the NTP, IARC, or regulated by OSHA AS carcinogens.

**SECTION 12 - ECOLOGICAL INFORMATION**

**ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.**  
**ECOTOXICITY:** Water Flea 48 hr LC50: 7071 ppm  
 Fathead Minnow 96 hr LC50: 5359 ppm  
**PERSISTENCE AND DEGRADABILITY:** No data available for this product.  
**BIOLOGICAL ACCUMULATION POTENTIAL:** No data available for this product.  
**MOBILITY IN SOIL:** No data available for this product.  
**OTHER ADVERSE EFFECTS (i.e., hazardous to the ozone layer):** No data available for this product.  
  
**BIOLOGICAL EXPOSURE INDICES:** Currently, Biological Exposure Indices (BEIs) have not been determined for the components of this product.

**SECTION 13 - DISPOSAL CONSIDERATIONS**

**DISPOSAL:** Thoroughly drain/empty containers and offer for recycling. Refer to Section 8 for exposure controls - personal protection. P501: Dispose of contents/container in accordance with local/regional/national/international regulations.



**SECTION 14 - TRANSPORTATION INFORMATION**

**PROPER SHIPPING NAME**

DOT: NOT REGULATED  
IMDG/IMO: NOT REGULATED  
IATA/ICAO: NOT REGULATED

**ENVIRONMENTAL HAZARDS**  
(i.e., **MARINE POLLUTANT**): None known.

**TRANSPORT IN BULK** (according to  
annex II marpol 73/78 and the IBC code): Not applicable.

**SPECIAL PRECAUTIONS FOR USER**: None known.

**SECTION 15 - REGULATORY INFORMATION**

**United States and International Regulations**

**United States Regulations: U.S. SARA REPORTING REQUIREMENTS:** The components of this product are subject to the reporting as listed below, requirements of Sections 302, 304, and 313 of Title of the Superfund Amendments and Reauthorization Act:

**CHEMICAL NAME**

PHOSPHONOBUTANE	SARA 302 (40 CFR 355, Appendix A) - NO
TRICARBOXYLIC ACID	SARA 304 (40 CFR Table 302.4) - NO SARA 313 (40 CFR 372.65) - NO
BENZOTRIAZOLE	SARA 302 (40 CFR 355, Appendix A) - NO SARA 304 (40 CFR Table 302.4) - NO SARA 313 (40 CFR 372.65) - NO
PHOSPHINOCARBOXYLIC ACID	SARA 302 (40 CFR 355, Appendix A) - NO SARA 304 (40 CFR Table 302.4) - NO SARA 313 (40 CFR 372.65) - NO
	SARA 302 (40 CFR 355, Appendix A) - NO SARA 304 (40 CFR Table 302.4) - NO

**U.S. Regulations**

**U.S. SARA THRESHOLD PLANNING QUANTITY:** There are no specific Threshold Planning Quantities for the components of this product. The default Federal SDS submission and inventory requirement filing threshold of 10,000 lbs (4,540 kg) therefore applies, per 40 CFR 370.20.U.S.

**CERCLA REPORTABLE QUANTITY (RQ):** None.

**U.S. TSCA INVENTORY STATUS:** The components of this product are listed on the TSCA Inventory, or are exempt.

**SARA Title 311/312, Hazard Category:** Acute Health: YES; Chronic: NO; Fire: NO; Reactive: NO; Sudden Release of Pressure: NO

**California Safe Drinking Water and Toxic Enforcement Act (proposition 65):** No component of this product is on the Proposition 65 list.

**International Regulations**

**CANADIAN REGULATIONS:**

**CANADIAN DSL/NDSL INVENTORY STATUS:** The components of this product are on the DSL or NDSL inventories or are exempt from listing.

**CANADIAN WHMIS CLASSIFICATION:** None.

**SECTION 16 - OTHER INFORMATION**

**PREPARED BY: GARRATT CALLAHAN**

**DATE OF REVISION:** 5/17/2018

**Supercedes:** 11/16/2017

**Kosher Status:**

FORMULA 2011LT has been certified by the Orthodox Union as Kosher Pareve under the UK ID number of OUV3-BOWLO7J when prepared in either the Addison, Illinois or Burlingame, California facilities.

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user's intended purpose or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose.

# FORMULA 314 T



**SAFETY DATA SHEET**

**SECTION 1 - PRODUCT IDENTIFICATION**

PRODUCT NAME:	FORMULA 314-T
PRODUCT USE:	BIOCIDE
RESTRICTIONS ON USE:	Refer to label, available technical information, and other appropriate sections of this SDS.
UN NUMBER:	1479
PROPER SHIPPING NAME:	OXIDIZING SOLID, N.O.S. (1-BROMO-3-CHLORO-5,5-DIMETHYLHYDANTOIN), 5.1, PGII,
MANUFACTURER'S NAME:	Garratt-Callahan Company
ADDRESS:	50 Ingold Road, Burlingame, CA 94010-2206
EMERGENCY PHONE:	<b>North America: CHEMTREC: 1-800-424-9300</b> <b>Outside North America: +1-703-527-3887</b>
BUSINESS PHONE:	Product Information: 650-697-5811
SDS NUMBER:	SD3314
DATE OF REVISION:	6/11/2015

**SECTION 2 - HAZARDS IDENTIFICATION**

**SIGNAL WORD:** DANGER

**HAZARD STATEMENT:**

H270: May cause or intensify fire; oxidizer. 1  
 H302: Harmful if swallowed. 4  
 H314: Causes severe skin burns and eye damage. 1A  
 H335: May cause respiratory irritation. 3



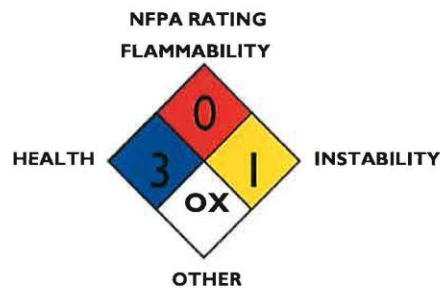
**PRECAUTIONARY STATEMENTS: (PREVENTION)**

P101: If medical advice is needed, have product container or label at hand.  
 P102: Keep out of reach of children.  
 P103: Read label before use.  
 P220: Keep/Store away from clothing/combustible materials.  
 P244: Keep reduction valves free from grease and oil.  
 P260: Do not breathe dust/fume/gas/mist/vapours/spray.  
 P264: Wash all exposed skin/hair thoroughly after handling.  
 P270: Do not eat, drink or smoke when using this product.  
 P271: Use only outdoors or in a well-ventilated area.  
 P280: Wear protective gloves/protective clothing/eye protection/face protection.

**HAZARDOUS MATERIAL IDENTIFICATION SYSTEM**

<b>HEALTH HAZARD (BLUE)</b>	<b>3</b>
<b>FLAMMABILITY HAZARD (RED)</b>	<b>0</b>
<b>REACTIVITY HAZARD (YELLOW)</b>	<b>1</b>

Hazard Scale  
 0=Minimal  
 1=Slight  
 2=Moderate  
 3=Serious  
 4=Severe  
 \*=Chronic hazard



**SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS**

<b>Hazardous Ingredients</b>	<b>CAS#</b>	<b>EC#</b>	<b>ICSC#</b>	<b>WT %</b>
I-BROMO-3-CHLORO-5,5-DIMETHYL-HYDANTOIN	16079-88-2	240-230-0	NE	60 - 100

**SECTION 4 - FIRST AID MEASURES**

Exposed individuals must be taken for medical attention if any adverse effect occurs. Take a copy of this SDS to the health professional with the individual. P310: Immediately call a POISON CENTER or doctor/physician.

**DANGER:** Harmful if swallowed. Causes severe skin burns and eye damage. May cause respiratory irritation. Also refer to Section 11 for symptoms, effects, and likely routes of exposure for this product.

**TARGET ORGANS:**

**ACUTE:** irritation of skin, eyes, respiratory and gastrointestinal systems.  
**CHRONIC:** irritation of skin, eyes, respiratory and gastrointestinal systems.

**SKIN EXPOSURE:** P303+P361+P353: IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower. Minimum flushing time is for 15 minutes. Remove exposed or contaminated clothing, taking care not to contaminate the eyes. P363: Wash contaminated clothing before reuse. P310: Immediately call a POISON CENTER or doctor/physician.

**EYE EXPOSURE:** P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing. Use sufficient force to open the eyelids. Have the exposed individual "roll" their eyes. Minimum flushing time is for 15 minutes. P310: Immediately call a POISON CENTER or doctor/physician.

**INHALATION:** P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P312: Call a POISON CENTER or doctor/physician if you feel unwell.

**INGESTION:** P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P301+312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Never induce vomiting or give diluents (milk or water) by mouth to someone who is unconscious, having convulsions, or unable to swallow. P310: Immediately call a POISON CENTER or doctor/physician.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Skin and respiratory disorders, as well as conditions involving the "Target Organs" may be aggravated by prolonged exposures to this product. Exposed individual must seek immediate medical attention if any adverse effect occurs.

**NOTES TO PHYSICIAN:** Treat symptoms as demonstrated by signs and distress in the patient.

**SECTION 5 - FIRE FIGHTING MEASURES**

**SUITABLE (AND UNSUITABLE) EXTINGUISHING MATERIALS:**

Product is non-flammable. Water spray, fog or mist. Alcohol resistant foam. Do not use ammonium phosphate (ABC), other dry chemical extinguishers or CO2. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**SPECIFIC HAZARDS ARISING FROM THE CHEMICAL:**

Oxidizing material. Forms explosive mixtures with combustible organic or other easily oxidizable materials. May release hydrogen bromide or bromine gas, nitrogen oxides, hydrogen chloride when wet. Fire causes formation of toxic gases, vapors of bromine, chlorine, oxides of nitrogen and/or carbon.

**SPECIAL PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIREFIGHTERS:**

Firefighters should wear fully protective clothing (chemical impermeable, fully encapsulated suit) and positive pressure self-contained breathing apparatus. Do not release run off from fire control methods to sewer or waterways. P370+P376: In case of fire: Stop leak if safe to do so.



**SECTION 6 - ACCIDENTAL RELEASE MEASURES**

**PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT, ENVIRONMENTAL PRECAUTIONS AND EMERGENCY PROCEDURES.**

**WARNING:** Any container expansion or rounding indicates pressure build-up. Use extreme caution. When opening, release pressure slowly through opening.

**SPILL AND LEAK RESPONSE:** Uncontrolled releases should be responded to by appropriately trained personnel using pre-planned procedures. Proper protective equipment should be used, refer to Section 8 - exposure controls.

**Small Spill:** Mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. P391: Collect spillage.

**Large Spill:** Restrict access to the area. Provide adequate protective equipment and ventilation. Stop leak if without risk. Remove chemicals which can react with the spilled material. Add dry inert material to contain and absorb spilled material. Prevent entry into surface waters, sewers, basements or confined areas, dike if needed. Avoid generation of dust. Avoid contact with water. Ensure that exposure to product is not at a concentration exceeding regulatory limits. Decontaminate the area thoroughly. Decontaminate all response equipment with soapy water before returning to service. Place all spill residue in a suitable container and seal. P391: Collect spillage.

**SECTION 7 - HANDLING AND STORAGE**

**PRECAUTIONS FOR SAFE HANDLING:** Keep out of reach of children. All employees who handle this material should be trained to handle it safely. Open containers slowly on a stable surface. As with all chemicals, avoid getting this product ON YOU or IN YOU. Avoid direct or prolonged contact with skin or eyes. Do not ingest. Wash thoroughly after handling this product. Do not eat, drink, smoke, or apply cosmetics while handling this product. Avoid breathing vapors, dusts or mists generated by this product. Use in a well-ventilated location. Remove contaminated clothing immediately. Use only as directed. Refer to Section 8 for exposure controls.

**CONDITIONS FOR SAFE STORAGE:** Containers of this product must be properly labeled. Storage areas of this product should be clearly identified, well-illuminated, clear of obstruction and accessible only to trained and authorized personnel. Store containers in a clean, cool, well ventilated, dry location, away from direct sunlight, away from incompatible materials at temperatures between 50°F (10°C) - 100°F (37°C). Keep container tightly closed when not in use. Avoid spilling, skin and eye contact. Avoid contact with acids, moisture or combustible materials. Keep away from heat, sparks and open flames. P405: Store locked up. Do not ingest. Do not breathe vapor mist. Wash hands after handling. Refer to Section 10 for incompatibilities. P403+P233: Store in a well ventilated place. Keep container tightly closed.

**SECTION 8 - EXPOSURE CONTROLS - PERSONAL PROTECTION**

**VENTILATION AND ENGINEERING CONTROLS:** Use with adequate ventilation. Eyewash/safety shower station is recommended to be available near where this product is used/stored.

**EXPOSURE LIMITS/GUIDELINES:**

CHEMICAL NAME	CAS#	EXPOSURE LIMITS IN AIR			
		ACGIH TLV TWA	ACGIH TLV STEL	OSHA PEL TWA	OTHER
I-BROMO-3-CHLORO-5,5-DIMETHYL-HYDANTOIN	16079-88-2	NE	NE	NE	N/A

NE = Not Established

**INGESTION:** P264: Wash all exposed skin/hair thoroughly after handling. P270: Do not eat, drink or smoke when using this product.

**RESPIRATORY PROTECTION:** P260: Do not breathe dust/fume/gas/mist/vapours/spray. P271: Use only outdoors or in a well-ventilated area. Maintain airborne contaminant concentrations below guidelines listed above, if applicable. Air-purifying respirators with dust/mist/fume/spray filters are recommended if operations may produce dusts, mists or sprays from this product with concentrations at or above levels posted above.

**EYE PROTECTION:** P264: Wash all exposed skin/hair thoroughly after handling. P280: Wear protective gloves/protective clothing/eye protection/face protection. Wear chemical safety goggles or safety glasses with side shields. A face shield may also be necessary for splash protection.

**SKIN PROTECTION:** P260: Do not breathe dust/fume/gas/mist/vapours/spray. P264: Wash all exposed skin/hair thoroughly after handling. P280: Wear protective gloves/protective clothing/eye protection/face protection. Use chemically-resistant gloves and skin protection, when handling this product. Use body protection appropriate for task (e.g., lab coat, overalls).



# Industrial and Sanitary Outfalls 2019 NPDES Permit Re-Application Outfall 03A181 Fact Sheet

TA-55 Facility Operations  
TA-55-6 Cooling Towers



## Revision Log

<u>Revision No.</u>	<u>Date</u>	<u>Page Nos.</u>	<u>Change Description</u>
<u>0</u>	<u>3/18/2019</u>	<u>NA</u>	<u>Original</u>
<u>1</u>	<u>7/31/2019</u>	<u>Attachment D, page D-5</u>	<u>Replaced Gross Alpha with "Adjusted Gross Alpha."</u>
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

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OUTFALL No.	TA - Bldg.	Year	Monitoring Period	Parameter	Quantity or Loading			Quality or Concentration							
					Average	Maximum	Units	Minimum	Average	Maximum	Units	Permit Limit	Units	Number of Samples	Frequency
<b>Total Suspended Solids</b>					<b>Daily Average</b>				<b>0.7</b>					<b>16</b>	
<b>Total Suspended Solids</b>					<b>Maximum 30 Day Average</b>				<b>0.7</b>					<b>16</b>	
<b>Total Suspended Solids</b>					<b>Maximum</b>					<b>0.7</b>				<b>16</b>	
03A181	TA55-6	2014	Dec	Phosphorus, Total				****	<1.45	<1.45	mg/L	30 - 100	mg/L	1	Quarterly
03A181	TA55-6	2015	Mar	Phosphorus, Total				****	3.66	3.66	mg/L	20 - 40	mg/L	1	Quarterly
03A181	TA55-6	2015	Jun	Phosphorus, Total				****	4.08	4.08	mg/L	20 - 40	mg/L	1	Quarterly
03A181	TA55-6	2015	Sept	Phosphorus, Total				****	2.41	2.41	mg/L	20 - 40	mg/L	1	Quarterly
03A181	TA55-6	2015	Dec	Phosphorus, Total				****	3.42	3.42	mg/L	20 - 40	mg/L	1	Quarterly
03A181	TA55-6	2016	Mar	Phosphorus, Total				****	6	6	mg/L	20 - 40	mg/L	1	Quarterly
03A181	TA55-6	2016	Jun	Phosphorus, Total				****	2.95	2.95	mg/L	20 - 40	mg/L	1	Quarterly
03A181	TA55-6	2016	Sept	Phosphorus, Total				****	0.99	0.99	mg/L	20 - 40	mg/L	1	Quarterly
03A181	TA55-6	2016	Dec	Phosphorus, Total				****	3.39	3.39	mg/L	20 - 40	mg/L	1	Quarterly
03A181	TA55-6	2017	Mar	Phosphorus, Total				****	4.58	4.58	mg/L	20 - 40	mg/L	1	Quarterly
03A181	TA55-6	2017	Jun	Phosphorus, Total				****	2.51	2.51	mg/L	20 - 40	mg/L	1	Quarterly
03A181	TA55-6	2017	Sept	Phosphorus, Total				****	2.83	2.83	mg/L	20 - 40	mg/L	1	Quarterly
03A181	TA55-6	2017	Dec	Phosphorus, Total				****	2.94	2.94	mg/L	20 - 40	mg/L	1	Quarterly
03A181	TA55-6	2018	Mar	Phosphorus, Total				****	2.54	2.54	mg/L	20 - 40	mg/L	1	Quarterly
03A181	TA55-6	2018	Jun	Phosphorus, Total				****	2.79	2.79	mg/L	20 - 40	mg/L	1	Quarterly
03A181	TA55-6	2018	Sept	Phosphorus, Total				****	2.66	2.66	mg/L	20 - 40	mg/L	1	Quarterly
<b>Phosphorus, Total</b>					<b>Daily Average</b>				<b>3.2</b>					<b>16</b>	
<b>Phosphorus, Total</b>					<b>Maximum 30 Day Average</b>				<b>6.0</b>					<b>16</b>	
<b>Phosphorus, Total</b>					<b>Maximum</b>					<b>6.0</b>				<b>16</b>	
03A181	TA55-6	2015	Sept	Copper, Dissolved				****	****	0.00158	mg/L	NA	NA	1	Yearly
03A181	TA55-6	2016	Sept	Copper, Dissolved				****	****	0.00231	mg/L	NA	NA	1	Yearly
03A181	TA55-6	2017	Sept	Copper, Dissolved				****	****	0.00258	mg/L	NA	NA	1	Yearly
03A181	TA55-6	2018	Sept	Copper, Dissolved				****	****	0.00243	mg/L	NA	NA	1	Yearly
<b>Copper, Dissolved</b>					<b>Daily Average</b>				<b>0.0022</b>					<b>4</b>	
<b>Copper, Dissolved</b>					<b>Maximum 30 Day Average</b>				<b>0.00258</b>					<b>4</b>	
<b>Copper, Dissolved</b>					<b>Maximum</b>					<b>0.00258</b>				<b>4</b>	
03A181	TA55-6	2015	Sept	Aluminum, Total				****	****	<0.015	mg/L	NA	NA	1	Yearly
03A181	TA55-6	2016	Sept	Aluminum, Total				****	****	<0.015	mg/L	NA	NA	1	Yearly
03A181	TA55-6	2017	Sept	Aluminum, Total				****	****	<0.0193	mg/L	NA	NA	1	Yearly
03A181	TA55-6	2018	Sept	Aluminum, Total				****	****	<0.0193	mg/L	NA	NA	1	Yearly
<b>Aluminum, Total</b>					<b>Daily Average</b>									<b>4</b>	
<b>Aluminum, Total</b>					<b>Maximum 30 Day Average</b>				<b>0.00000</b>					<b>4</b>	
<b>Aluminum, Total</b>					<b>Maximum</b>					<b>0.00000</b>				<b>4</b>	
03A181	TA55-6	2016	Sept	Adjusted Gross Alpha				****	0.403	0.403	pCi/L	NA	NA	1	Term
<b>Adjusted Gross Alpha</b>					<b>Daily Average</b>									<b>1</b>	
<b>Adjusted Gross Alpha</b>					<b>Maximum 30 Day Average</b>									<b>1</b>	
<b>Adjusted Gross Alpha</b>					<b>Maximum</b>					<b>0.403</b>				<b>1</b>	





***Environmental Protection & Compliance  
Division***

***Compliance Programs Group***

Los Alamos National Laboratory  
PO Box 1663, K490  
Los Alamos, NM 87545  
505-667-0666

*Symbol:* EPC-DO: 19-299  
*LAUR:* 19-28240  
*Date:* **AUG 19 2019**

Dorothy Brown, 6WQ-PO  
U.S. Environmental Protection Agency  
1445 Ross Avenue, Suite 1200  
Dallas, TX 75202-2733

**Subject: NPDES Permit No. NM0028355, 2019 NPDES Permit Re-Application,  
Supplemental Package 1**

Dear Ms. Brown:

The purpose of this letter is to provide supplemental information, as discussed with the U.S. Environmental Protection Agency (EPA) on July 12, 2019, that is applicable to the renewal of the Los Alamos National Laboratory (LANL) National Pollutant Discharge Elimination System (NPDES) Permit No NM0028355. Specifically, enclosed with this letter are nine attachments that provide an update to the LANL endangered species act data and eight revised outfall fact sheets. The revised fact sheets are replacements for the fact sheets submitted with the 2019 Permit Re-Application on March 26, 2019. The revisions to these fact sheets are limited to minor editorial issues, clarifications, cut/past errors, and/or the replacement of material safety data sheets (MSDS) with more current safety data sheets (SDS). Each fact sheet now includes a revision log and the fact sheets are red lined to highlight the changes.

If you need additional information or have questions regarding the Permit Re-Application. Please contact Karen Armijo, DOE at (505-665-7314) or Mike Saladen, Triad, at (505-665-6085).

Sincerely,



Taunja S. Van Valkenburg  
Group Leader

TVV/MTS/JKG:jdm

- Attachment(s): Attachment 1 Updates to LANL Information for Endangered Species Act  
Attachment 2 Editorial Corrections to the NPDES-FS-18-001, Outfall 001 Fact Sheet  
Attachment 3 Editorial Corrections to the NPDES-FS-18-003-R1, Outfall 03A027 Fact Sheet  
Attachment 4 Editorial Corrections to the NPDES-FS-18-004-R1, Outfall 03A199 Fact Sheet  
Attachment 5 Editorial Corrections to the NPDES-FS-18-005-R1, Outfall 03A048 Fact Sheet  
Attachment 6 Editorial Corrections to the NPDES-FS-18-006-R1, Outfall 03A113 Fact Sheet  
Attachment 7 Editorial Corrections to the NPDES-FS-18-007-R1, Outfall 03A160 Fact Sheet  
Attachment 8 Editorial Corrections to the NPDES-FS-18-008-R1, Outfall 04A022 Fact Sheet  
Attachment 9 Editorial Corrections to the NPDES-FS-18-009-R1, Outfall 03A181 Fact Sheet

Copy: Isaac Chen, EPA, [Chen.Isaac@epa.gov](mailto:Chen.Isaac@epa.gov)  
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# **ATTACHMENT 1**

## **Updates to LANL Information for Endangered Species Act**

**EPC-DO: 19-299**

**LA-UR-19-28240**

**Date:**                     **AUG 19 2019**

WQMP Water Quality Management Plan  
WWTP Wastewater treatment plant

**STATE CERTIFICATION:** The permit is in the process of certification by the State agency following regulations promulgated at 40 CFR124.53. A draft permit and draft public notice will be sent to the District Engineer, Corps of Engineers; to the Regional Director of the U.S. Fish and Wildlife Service (**USFWS**); and to the National Marine Fisheries Service prior to the publication of that notice.

**TRIBAL CERTIFICATION:** Several Pueblos are located in the vicinity of Los Alamos National Laboratory (**LANL**). They include the following: San Ildefonso, Santa Clara, and Cochiti. The Santa Clara Pueblo has approved water quality standards (WQS); however, it is not adjacent to any stream where discharges are proposed to be authorized. Santa Clara is therefore not believed to be affected by the discharges proposed to be authorized by this permit. Neither San Ildefonso nor Cochiti Pueblo has submitted WQS for approval at this time; therefore, the only 401 certification is required from the State of New Mexico. However, pursuant to EPA’s Tribal Consultation Policy, EPA offered, in letters of **XXXX**, 2019, to San Ildefonso and Cochiti Pueblos, respectively, the opportunity to engage in government-to-government consultation because they are located downstream of the facility’s discharges.

**ENDANGERED SPECIES ACT:** In accordance with requirements under section 7(a)(2) of the Endangered Species Act, **the** EPA has reviewed this permit for its effect on listed threatened and endangered species and designated critical habitat. According to the most recent county listing of species, shown on the U.S. Fish and Wildlife Service’s (~~the Service’s~~) Information, Planning, and Conservation System (~~IPAC~~), the following species **with critical habitats** may be present in the county where the proposed NPDES discharge occurs: ~~southwestern willow flycatcher (*Empidonax traillii extimus*), Mexican spotted owl (*Strix occidentalis lucida*) with critical habitats and , yellow-billed cuckoo (*Coccyzus americanus*), Jemez Mountains salamander (*Plethodon neomexicanus*).~~ **The following species may be present in the county where the proposed NPDES discharge occurs without critical habitats:** ~~with critical habitats, and~~ New Mexico meadow jumping mouse (*Zapus hudsonius luteus*), ~~southwestern willow flycatcher (*Empidonax traillii extimus*), and yellow-billed cuckoo (*Coccyzus americanus*).~~

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During the re-issuance of this permit in 2000, **the** EPA conducted **an** informal consultation with the ~~U.S. Fish and Wildlife Service (USFWS) the FWS or the Service~~ (Cons. #2-22-01-I-018). That consultation was concluded on December 7, 2000 with the **USFWS Service** concurring by letter with EPA’s determination that the re-issuance of the NPDES permit for LANL would have “no effect” on Mexican spotted owl and “may affect, not likely to adversely affect” on the bald eagle (*Haliaeetus leucocephalus*) and southwestern willow flycatcher.

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The **USFWS** concluded in the 2000 consultation letter: “Based on information in the BE (Biological Evaluation), the **USFWS Service** believes that the reissued permit should slightly improve effluent water quality at LANL over the 5-year permit. In addition, re-issuance of the NPDES permit will not measurably alter stream morphology, flow patterns, temperatures, water chemistry, or slit loads in any of the affected intermittent tributaries or the Rio Grande. Therefore, the Service concurs with the EPA determination that the re-issuance of the NPDES



permit for LANL will have “no effect” on the Mexican spotted owl, and “may affect, not likely to adversely affect” the bald eagle and southwestern willow flycatcher.” On August 9, 2007, the bald eagle was removed from the federal list of threatened and endangered species and it will not be analyzed further in this document.

New species listed since the 2000 consultation were analyzed using the LANL Habitat Management Plan (HMP: LANL 2017). The purpose of the HMP is to provide a management strategy for Endangered Species Act compliance through the protection of threatened and endangered species and their habitats on LANL property. The HMP consists of site plans for federally listed threatened or endangered species with a moderate or high probability of occurring at LANL. The HMP received concurrence from the U.S. Fish and Wildlife Service (USFWS) in 1999 (Consultation numbers 2-22-98-I-336 and 2-22-95-I-108) and it is updated as needed with new consultations. Provided that an activity at LANL falls within the requirements of the HMP, then the activity does not need further review from the USFWS and is considered to have the same determination as the HMP which is “may affect, not likely to adversely affect”. Activities that cannot follow the HMP requirements must go through an individual section-7 consultation. The EPA determines that the reissuance of this permit has “no effect” upon the baseline of the HMP.

**Commented [CDH1]:** Citation  
Los Alamos National Laboratory (LANL) 2017 Threatened and Endangered Species Habitat Management Plan for Los Alamos National Laboratory. Los Alamos National Laboratory report LA-UR-17-29454.

Mexican spotted owl. The Mexican spotted owl prefers forested mountains and canyons with mature trees that create high, closed canopies, which are good for nesting. They also nest in stick nests built by other birds, in tree cavities and caves and on cliff ledges. The main threats to the Mexican spotted owl are starvation, fire, and loss of habitat due to logging, which also causes a greater risk of predation by great horned owls as a result of increased open space. There have been no major changes with regards to the Mexican spotted owl since the 2000 consultation. Therefore, reissuance of this permit will not contribute threats as listed above to the Mexican spotted owls and the EPA maintains the “no effect” determination.

**Commented [CDH2]:** The 5 species listed have very different levels of “general ecology” information listed. The one here for the owl is appropriate. The flycatcher and mouse have nothing listed and the cuckoo and salamander have way too much listed. I’ll make them all consistent

Southwestern willow flycatcher. The southwestern willow flycatcher is one of four subspecies of the willow flycatcher. The historic range of the southwestern willow flycatcher included Arizona, California, Colorado, New Mexico, Texas, Utah, and Mexico. Currently, this flycatcher breeds in riparian habitats from southern California to Arizona and New Mexico, plus southern Colorado, Utah and Nevada. There have been no major changes with regards to the southwestern willow flycatcher since the 2000 consultation. Therefore, the reissuance of this permit will not contribute any new threats to the southwestern willow flycatcher and the EPA maintains the “may affect, not likely to adversely affect” determination. LANL has provided a statement to EPA, via an email dated August 26, 2013, when EPA prepared the permit reissuance for LANL’s industrial wastewater discharge permit (NM0028355) that “The only area of habitat that we currently manage as Southwestern Willow Flycatcher habitat is the wetlands complex on the north side of Pajarito Road just east of TA-18. We have been surveying the area since the mid-90s and have never had any nest, but we occasionally do have migrant Willow Flycatchers come through. Since none of them have stayed and nested we cannot say that they were the endangered southwestern subspecies.” Based on the new information available, since the southwestern willow flycatcher has not been observed for staying or nesting in LANL since the mid-90s, EPA has determined that this permitting action has “no effect” on southwestern willow flycatcher.

**Commented [CDH3]:** Only the DOE/NNSA Field Office can “make” a determination of “no effect” on DOE property in coordination with LANL Biologists. This species was covered under the 2000 consultation and was then listed as “may affect, not likely to adversely affect” and it must stay at that level. This species is also covered under the LANL HMP and that also makes it “may affect, not likely to adversely affect”.

Yellow-billed Cuckoos. Yellow-billed Cuckoos use wooded habitat with dense cover and water nearby, including woodlands with low, scrubby, vegetation, overgrown orchards, abandoned farmland, and dense thickets along streams and marshes. ~~In the Midwest, look for cuckoos in shrublands of mixed willow and dogwood, and in dense stands of small trees such as American elm.~~ ~~In the Southwest, Yellow-billed Cuckoos breed in rare breeders in riparian woodlands of willows, cottonwoods and dense stands of mesquite to breed. This species was not analyzed in the 2000 consultation. The LANL HMP does not have any requirements for this species since it does not contain any breeding habitat on-site. Therefore, the reissuance of this permit has "no effect" on this species.~~

~~Caterpillars top the list of Yellow-Billed Cuckoo prey; individual cuckoos eat thousands of caterpillars per season. On the East coast, periodic outbreaks of tent caterpillars draw cuckoos to the tentlike webs, where they may eat as many as 100 caterpillars at a sitting. Fall webworms and the larvae of gypsy, brown-tailed, and white-marked tussock moths are also part of the cuckoo's lepidopteran diet, often supplemented with beetles, ants, and spiders. They also take advantage of the annual outbreaks of cicadas, katydids, and crickets, and will hop to the ground to chase frogs and lizards. In summer and fall, cuckoos forage on small wild fruits, including elderberries, blackberries and wild grapes. In winter, fruit and seeds become a larger part of the diet.~~

~~Yellow-billed Cuckoo populations declined by 1.6 percent per year between 1966 and 2010, resulting in a cumulative decline of 51 percent, according to the North American Breeding Bird Survey. Partners in Flight estimates the global breeding population at about 9 million, with 84 percent breeding in the U.S., 10 percent in Mexico, and none in Canada. They score a 12 out of 20 on the Partners in Flight Continental Concern Score, and the 2014 State of the Birds Report listed them as a Common Bird in Steep Decline. In the West, much of the Yellow-Billed Cuckoo's riparian habitat has been converted to farmland and housing, leading to significant population declines and the possible extirpation of cuckoos from British Columbia, Washington, Oregon, and Nevada. Once common in the California's Central Valley, coastal valleys, and riparian habitats east of the Sierra Nevada, habitat loss now constrains the California breeding population to small numbers of birds along the Kern, Sacramento, Feather, and Lower Colorado Rivers. The western population of Yellow-billed Cuckoos was a candidate for federal endangered status. Sites replanted with riparian vegetation in southern California supported breeding birds within three years, demonstrating the potential for habitat restoration. As long-distance, nocturnal migrants, Yellow-Billed Cuckoos are vulnerable to collisions with tall buildings, cell towers, radio antennas, wind turbines, and other structures. EPA does not believe that this permitting action has any effect on the species.~~

Jemez Mountains Salamander. The Jemez Mountains salamander is endemic to the Jemez Mountains of north-central New Mexico and is found in Los Alamos, Rio Arriba, and Sandoval counties. It is one of two endemic plethodontid salamanders that occur in New Mexico. It occurs predominantly at elevations between 6,988 to 11,254 ft in mixed conifer forests with greater than 50 percent canopy cover. Plethodontid salamanders, which lack both lungs and gills, breathe through the mucous membranes in their mouth and throat and through their moist skin. The Jemez Mountains salamander is completely terrestrial and does not use standing surface water for any life stage. Present in its habitat year-round, the Jemez Mountains salamander spends most



of its life underground, but can be found on the surface when conditions are warm and wet, approximately July through October. This species was not analyzed in the 2000 consultation. The reissuance of this permit is within the scope of the HMP requirements. Therefore, it has been determined that its reissuance "may affect, not likely to adversely affect" the Jemez Mountains salamander. LANL stated in the email of August 26, 2013, that "We do have habitat for the Jemez Mountains Salamander in a few different canyons that will be managed under our Habitat Management Plan once the federal listing is final which is any day now. We have confirmed the habitat in Los Alamos Canyon is occupied and the other areas we have modeled to be habitat are assumed to be occupied since the species is so hard to find and surveys destroy habitat."

Based on information provided by the FWS in Federal Register, Vol. 78, No. 175, (September 10, 2013), the Jemez Mountains salamander is strictly terrestrial, does not possess lungs, and does not use standing surface water for any life stage. Respiration (the exchange of oxygen and carbon dioxide) occurs through the skin, which requires a moist microclimate for gas exchange. Substrate moisture through its effect on absorption and loss of water is probably the most important factor in the ecology of this terrestrial salamander. The Jemez Mountains salamander spends much of its life underground but can be found above ground when relative environmental conditions are warm and wet, which is typically from July through September, but occasional salamander observations have been made in May, June, and October. Relatively warm and wet environmental conditions suitable for salamander aboveground activity are likely influenced by melting snow and summer monsoon rains. When active above ground, the species is usually found under decaying logs, rocks, bark, or moss mats or inside decaying logs or stumps. Changes in pH (acidity or alkalinity) can affect plethodontid salamander behavioral and physiological responses. In one study of the Jemez Mountains salamander, soil pH was the single best indicator of relative abundance of salamanders at a site. Sites with salamanders had a soil pH of 6.6 ( $\pm 0.08$ ) and sites without salamanders had a soil pH of 6.2 ( $\pm 0.06$ ).

The following statements are also provided in the 2013 Federal Register. Subsurface geology and loose rocky soil structure may be an important attribute of underground salamander habitat. Geologic and moisture constraints likely limit the distribution of the species. Soil pH (acidity or alkalinity) may limit distribution as well. However, the composition of this subterranean habitat has not been fully investigated. The salamander's subterranean habitat appears to be deep, fractured, subterranean, igneous rock in areas with high soil moisture. Many terrestrial salamanders deposit eggs in well hidden sites, such as underground cavities, decaying logs, and moist rock crevices. Because the Jemez Mountain salamander spends the majority of its life below ground, eggs are probably laid and hatch underground. Although no egg clutches have been discovered in the wild, it is believed they are laid in the fractured interstices of subterranean, metamorphic rock. Jemez Mountain salamanders lack lungs; instead, they are cutaneous respirators (meaning they exchange gases, such as oxygen and carbon dioxide, through their skin). To support cutaneous respiration its skin must be moist and permeable. Jemez Mountain salamanders must address hydration needs above all other life history needs. The salamander must obtain its water from its habitat. In addition, it has no physiological mechanism to stop dehydration or water loss to the environment. Based on this information, it is likely that substrate moisture through its effect on absorption and loss of water is the most important factor in the ecology of this species. We suspect that these components may be a main driver behind salamander occurrences and distribution.

PERMIT NO. NM0028355

FACT SHEET

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LANL has developed a Habitat Management Plan (HMP) entitled "Threatened and Endangered Species Habitat Management Plan Area of Environmental Interest Site Plan for the Jemez Mountains Salamander", dated July 2013. The HMP states that the primary threats to the JMS on Los Alamos National Laboratory (LANL) property are impacts to habitat quality or destruction of individual salamanders caused by LANL or Los Alamos County operations. Forested LANL property is also subject to impacts from severe wildland fire and wildfire suppression. During periods of the year when the salamanders are on the soil surface, when conditions are warm and wet (generally July–September), they are vulnerable to injury and mortality from soil-disturbing activities, including operation of heavy equipment in core habitat. They also are at risk to be found and collected by people.

The HMP has identified areas of environmental interest (AEIs) which consist of two areas, a core area and a buffer area. The core habitat is defined as suitable habitat where the JMS occurs or may occur at LANL. The core habitat consists of sections of north-facing slope that contain the required micro-habitat to support the salamanders. The buffer area is 328 feet (100 meters) wide extending outward from the edge of the core area. LANL has identified core habitats which contain contiguous and noncontiguous habitat areas. The largest contiguous section of habitat at LANL is in Los Alamos Canyon. There are two noncontiguous areas of habitat in Two-mile Canyon, four in Pajarito Canyon, one contiguous area in Cañon de Valle, and the entire Fenton Hill facility.

The HMP provides the guidelines for habitat alterations and allowable activities in AEI core and buffer areas for the salamanders. It describes what and where habitat alterations are allowed under the guidelines of this site plan. If an activity does not meet the restrictions given in the guidelines, the activity must be individually reviewed for ESA compliance through the section 7 consultation process. Because any activity conducted by LANL which may affect federally listed endangered species requires compliance with ESA section 7 consultation process and LANL has implemented the HMP to protect the species habitats, EPA determines that the reissuance of this permit has "no effect" upon the baseline of the HMP. If any site-specific information indicates that to comply with the permit requirements may cause adverse effect to the species during the term of the permit, then EPA may reevaluate the effect for that specific Site.

New Mexico meadow jumping mouse. The New Mexico meadow jumping mouse is endemic to New Mexico, Arizona, and a small area of southern Colorado. The jumping mouse is grayish-brown on the back, yellowish-brown on the sides, and white underneath. The jumping mouse is a habitat specialist and it nests in dry soils, but uses moist, streamside, dense riparian/wetland vegetation up to an elevation of about 8,000 ft. New Mexico Meadow-Jumping Mouse has been listed in the federal endangered species list. LANL stated in the email of August 26, 2013 that LANL does not have any New Mexico Meadow-Jumping Mouse habitat at LANL. Experts from NMDGF (New Mexico Department of Game and Fish) have surveyed areas of possible habitat and they have confirmed that LANL does not have habitat for that species. Therefore, any federal action on the facility will have "no effect" on the species. This species was not analyzed in the 2000 consultation. The LANL HMP does not have any requirements for this species since it does not contain any breeding habitat on-site. Therefore, the



PERMIT NO. NM0028355

FACT SHEET

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reissuance of this permit has "no effect" on this species.

**FINAL DETERMINATION:** The public notice describes the procedures for the formulation of final determinations.

#### I. CHANGES FROM THE PREVIOUS PERMIT

EPA proposes some significant changes from the permit previously issued with an expiration date of September 30, 2019. Water quality-based effluent limitations change are due to new effluent flow or quality information.

- A. All Outfalls: Deleting monitoring requirements and/or effluent limitations for pollutants which new effluent characteristics demonstrated no Reasonable Potential.
- B. Outfall 001: Adding WET limit for Ceriodaphnia dubia; and adding/retaining effluent limitations for copper, zinc and PCBs.
- C. Outfall 051: Adding effluent limitations for copper and adjustable gross alpha.
- D. Outfall 05A055: Adding/revising effluent limitations for aluminum, copper, lead, selenium and zinc.
- E. Outfall 03A027: Adding/retaining effluent limitations for copper, zinc and PCBs; and deleting WET testing.
- F. Outfall 03A160: Adding/retaining effluent limitations for chromium (VI), mercury, selenium and cyanide.
- G. Updating WET languages.

#### II. APPLICANT LOCATION AND ACTIVITY

Under the Standard Industrial Classification (SIC) Codes 9922, 9711, 9661, and 9611, the applicant currently operates a large multi-disciplinary facility which conducts national defense research and development, scientific research, space research and technology development, and energy development.

The facility is located in Los Alamos County, New Mexico. The discharges are to receiving waters consisting of various tributaries in Waterbody Segment Code No. 20.6.4.126 and 20.6.4.128 of the Rio Grande Basin. Those discharges are:

Tech. Area	Outfall Number	Receiving Stream	Longitude/Latitude
TA-3	001	Sandia Canyon	106° 19' 09" W/ 35° 52' 26" N
TA-46	13S	Canada del Buey	106° 16' 33" W/ 35° 51' 08" N
TA-3	03A027	Sandia Canyon	106° 19' 09" W/ 35° 52' 26" N

# **ATTACHMENT 2**

## **Editorial Corrections to the NPDES-FS-18-001, Outfall 001 Fact Sheet**

**EPC-DO: 19-299**

**LA-UR-19-28240**

**Date:**                     **AUG 19 2019**

# **Industrial and Sanitary Outfalls 2019 NPDES Permit Re-Application Outfall 001 Fact Sheet**

Utilities and Infrastructure (U&I)

Power Plant, Sanitary Wastewater System (SWWS) Facility, Sanitary Effluent Reclamation Facility (SERF), and Strategic Computing Complex (SCC) Cooling Towers



## Revision Log

<u>Revision No.</u>	<u>Date</u>	<u>Page Nos.</u>	<u>Change Description</u>
<u>0</u>	<u>3/18/2019</u>	<u>NA</u>	<u>Original</u>
<u>1</u>	<u>7/31/19</u>	<u>Page 8 of 12, Table 3</u>	<u>Revised to remove the chemical concentration percentages which may vary as chemicals are ordered.</u>
		<u>Page 9 of 12, Table 3</u>	<u>Updated the chemical information for C358 and R-630 for the SCC Cooling Towers. Deleted WEST C-825 because the chemical is no longer in use.</u>
		<u>Page 11 of 12, Table 6</u>	<u>Updated the potential chemicals associated with the SCC Cooling Towers to match Table 3.</u>
		<u>Attachment D, Page D-8 of 11</u>	<u>Revised Summary line for Aluminum to say "Aluminum, Total"</u>
		<u>Attachment D, Page D-8 of 11</u>	<u>Revised Summary line for Copper to say "Copper, Dissolved"</u>
		<u>Attachment D, Page D-9 of 9</u>	<u>Revised PCB to say "PCB, Total"</u>
		<u>Attachment D, Page D-9 of 9</u>	<u>Revised Gross Alpha to say "Adjusted Gross Alpha"</u>
		<u>Attachment E, Page E23</u>	<u>Replaced Sodium Hydroxide MSDS with a current SDS.</u>
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-



Source	Treatment Code	Description	Justification
SCC Cooling Towers	2-E	Dechlorination	Chlorine Scavenger Chemicals are Added
	2-H	Disinfection (other)	Chemicals are added to Control Microorganisms
	2-L	Reduction	Chemicals that are Antiscalant and Corrosion Inhibitors are Added

MIOX = mixed oxidation; RO = reverse osmosis; SCC = Strategic Computing Complex; SERF = Sanitary Effluent Reclamation Facility; SWWS = Sanitary Wastewater System

The water treatment processes identified in Table 2 utilize the chemicals identified in Table 3.

Source	Chemical Name	Reason for Use	Toxic Pollutant and/or Hazardous Substances Table 2C-3 or 2C-4	
Power Plant	Nalco 7408	Chlorine Scavenger Dechlorination	Sodium bisulfite	2C-4
	Bright Dyes FLT Yellow/Green Liquid	Water Line & Drain Tracing Dye	NA	NA
	Bright Dyes FLT Yellow/Green Tablet	Water Line & Drain Tracing Dye	NA	NA
SWWS Facility <sup>a</sup>	Clarifloc C-6265	Polymer Flocculation Agent	NA	NA
	Dog Food	Food Source for Microorganisms	NA	NA
	Glycerin	Carbon Source for Microorganisms	NA	NA
	Sodium Bisulfite	Dechlorination	sodium bisulfite	2C-4
	Soda Ash	Add Alkalinity	NA	NA
	Sodium Chloride	Chlorine Source for Disinfection Using the MIOX System	Chlorine	2C-4
	Sulfur Dioxide	Dechlorination	NA	NA
	Bright Dyes FLT Yellow/Green Liquid	Water Line & Drain Tracing Dye	NA	NA
	Bright Dyes FLT Yellow/Green Tablet	Water Line & Drain Tracing Dye	NA	NA
SERF	40%-Ferric Chloride	Promote Precipitation	Ferric Chloride	2C-4
	25%-Magnesium Chloride	Promote Precipitation	Magnesium Chloride	NA
	33%-Hydrochloric Acid	pH Adjustment	Hydrochloric Acid	2C-4
	35%-Sodium Hypochlorite	Clean/Disinfect RO Units	Sodium Hypochlorite	2C-4
	25%-Sodium Hydroxide	pH Adjustment	Sodium Hydroxide	2C-4
	38%-Sodium Bisulfite	Injected prior to the RO Unit as a de-chlorinating Agent.	Sodium Bisulfite	2C-4
	Perma Treat PC-510T	RO Unit Antiscalant Polymer	Sodium Nitrite	2C-4
	Bright Dyes FLT Yellow/Green Liquid	Water Line & Drain Tracing Dye	NA	NA
	Bright Dyes FLT Yellow/Green Tablet	Water Line & Drain Tracing Dye	NA	NA
	SCC Cooling Towers <sup>b</sup>	Bromine Tablets	Biocide	Bromo-chloro-5,5-dimethyl hydantoin (chlorine source)
HACH 203832		Sulfuric Acid Solution 19.2 N	Sulfuric Acid	2C-4
HACH 1407028		Free Chlorine Reagent	Sodium Phosphate Dibasic	2C-4
			EDTA	2C-4
HACH 2076053		Molybdovanadate Reagent	Sulfuric Acid	2C-4
HACH 2105669		Total Chlorine Reagent	Sodium Phosphate Dibasic	2C-4
HACH 2263411		Total Chlorine Indicator	Sulfuric Acid	2C-4
HACH 2263511		Total Chlorine Buffer Solution	Sodium Hydroxide	2C-4
	EDTA		2C-4	

Source	Chemical Name	Reason for Use	Toxic Pollutant and/or Hazardous Substances Table 2C-3 or 2C-4	
	HACH 2297255	Compound for Free and Total Chlorine Analyzers	NA	NA
	HACH 2314011	Free Chlorine Indicator Solution for CL-17 Analyzer	Toluene	2C-4
	HACH 2314111	Free Chlorine Buffer for CL-117 Analyzer	NA	NA
	HACH 2756549	pH Storage Solution	Sodium Phosphate Dibasic	2C-4
	WEST C-358 <del>AP</del>	Corrosion Inhibitor and Antiscalant	<del>Potassium Hydroxide</del> Sodium Hydroxide	2C-4
	WEST C-825	pH control (neutralization)	Sodium Bisulfite	2C-4
	WEST R-630	De-Chlorination	Sodium Metabisulfite	2C-4
	Bright Dyes FLT Yellow/Green Liquid	Water Line & Drain Tracing Dye	NA	NA
	Bright Dyes FLT Yellow/Green Tablet	Water Line & Drain Tracing Dye	NA	NA

- a. See the permit application section provided for Outfall 13S for the Safety Data Sheets associated with SWWS.  
b. See the permit application section provided for Outfall 03A027 for the Safety Data Sheets associated with the SCC Cooling Towers.

EDTA = Ethylene Diamine Tetraacetic Acid; MIOX = mixed oxidation; RO = reverse osmosis; SCC = Strategic Computing Complex; SERF = Sanitary Effluent Reclamation Facility; SWWS = Sanitary Wastewater System

### 2.3 Discharge Rate and Frequency [II.C]

The discharge rates and frequencies for Outfall 001 and its sources are provided in Table 4.

Source <sup>a</sup>	Frequency		Flow Rates and Volumes				
	Days/Week	Months	Average (MGD)	Maximum (MGD)	Average Volume (GPD)	Maximum Volume (GPD)	Duration (days)
Power Plant	7	12	0.050	0.195	49,652	194,524	365
SWWS Facility <sup>b, c</sup>	7	12	0.026	0.209	26,432	209,173	365
SERF	7	12	0.040	0.122	39,807	121,914	365
SCC Cooling Towers <sup>d, e</sup>	7	12	0.051	0.105	50,679	104,804	365
Total Outfall 001	7	12	0.154	0.333	153,931	332,600	365

- a. Calculated between October 2017 and September 2018.  
b. The average volume of SWWS effluent discharged to Outfall 001 is significantly less on average due to reuse at the SCC after being treated at SERF.  
c. See the permit section provided for Outfall 13S for a schematic.  
d. Cooling tower blowdown calculated for the operation of 10 cooling towers.  
e. See the permit section provided for Outfall 03A027 for a schematic.

GPD = gallons per day; MGD = million gallons per day; SCC = Strategic Computing Complex; SERF = Sanitary Effluent Reclamation Facility; SWWS = Sanitary Wastewater System

### 3.0 PRODUCTION [Section III]

Section III is not applicable to Outfall 001.

**Table 6**  
**Potential Pollutants by Source for Outfall 001**

Source Description	POTENTIAL Toxic Pollutant and/or Hazardous Substances Table 2C-3 or 2C-4		Analytical Data Results from Outfall 001 <sup>a</sup>
Power Plant	Sodium Bisulfite	2C-4	Sulfite = 1 mg/L
SWWS Facility Treatment Chemicals	Chlorine	2C-4	Residual Chlorine = 0
	Sodium Bisulfite	2C-4	Sulfite = 1 mg/L
SWWS Chemicals identified on Influent Waste Stream Profile Forms	Acetic Acid	2C-4	pH = 7 to 8.5 S.U.
	Acetone	2C-4	Not Analyzed <sup>c</sup>
	Ammonia	2C-4	0.207 mg/L
	Aniline	2C-3 & 2C-4	Not Analyzed <sup>c</sup>
	Benzene	2C-4	1.81 ug/L
	Benzoic Acid	2C-4	pH = 7 to 8.5 S.U.
	Calcium Hypochlorite	2C-4	Chloride = 45.5 mg/L
	Carbon Disulfide	2C-3 & 2C-4	Not Analyzed <sup>c</sup>
	Chlorine	2C-4	Residual chlorine = 0
	Chloroform	2C-4	0.82 ug/L
	Cresol	2C-3 & 2C-4	Not Analyzed <sup>c</sup>
	Ethylbenzene	2C-4	Not Detected (VOC)
	Polychlorinated Biphenyls <sup>b</sup>	2C-4	Not Detected
	Phenol	2C-4	Not Detected (SVOC)
	Phosphoric Acid	2C-4	pH = 7 to 8.5 S.U. Total Phosphorus = 1.83 mg/L
	Potassium Hydroxide	2C-4	pH = 7 to 8.5 S.U.
	Sodium	2C-4	Not Analyzed <sup>c</sup>
	Sodium Bisulfite	2C-4	Sulfite = 1 mg/L
	Sodium Hydroxide	2C-4	pH = 7 to 8.5 S.U.
	Sodium Hypochlorite	2C-4	Chloride = 45.5 mg/L
	Sodium Nitrite	2C-4	Nitrate/nitrite = 1.69 mg/L
	Strontium	2C-3	Not Analyzed <sup>c</sup>
	Styrene	2C-3 & 2C-4	Not Analyzed <sup>c</sup>
Toluene	2C-4	Not Detected (VOC)	
Uranium	2C-3	Not Analyzed <sup>c</sup>	
Vanadium	2C-3	Not Analyzed <sup>c</sup>	
SERF Treatment Chemicals	Ferric Chloride	2C-4	Chloride = 45.5 mg/L Iron = 37.9 mg/L
	Hydrochloric Acid	2C-4	pH = 7 to 8.5 S.U.
	Magnesium Chloride	2C-4	Magnesium = 2,930 mg/L Chloride = 45.5 mg/L
	Sodium Bisulfite	2C-4	Sulfite = 1 mg/L
	Sodium Hydroxide	2C-4	pH = 7 to 8.5 S.U.
	Sodium Hypochlorite	2C-4	Chloride = 45.5 mg/L
	Sodium Nitrite	2C-4	Nitrate/Nitrite = 1.69 mg/L
SCC Cooling Towers Treatment Chemicals	EDTA	2C-4	pH = 7 to 8.5 S.U.
	Potassium Hydroxide	2C-4	pH = 7 to 8.5 S.U.
	Sodium Bisulfite/Metabisulfite	2C-4	Sulfite = 1 mg/L
	Sodium Hydroxide	2C-4	pH = 7 to 8.5 S.U.
	Sodium Phosphate Dibasic	2C-4	Total Phosphorus = 1.83 mg/L
	Sulfuric Acid	2C-4	pH = 7 to 8.5 S.U.
	Toluene	2C-4	Not Detected (VOC)
	Chlorine	2C-4	Total Residual Chlorine = 0

a. Results are from the representative sample collected at Outfall 001 on August 21, 2018 – August 23, 2019.

OUTFALL No.	TA-Bldg.	Year	Monitoring Period	Parameter	Quantity or Loading			Quality or Concentration							Units	Permit Limit	Number of Samples	Frequency	Notes
					Average	Maximum	Units	Minimum	Average	Maximum	Units								
001	TA3-22	2016	Dec	Total Suspended Solids	2.59	2.59	lbs/day	****	1.26	1.26	mg/L	30 Monthly Ave 100 Daily Max	mg/L	1	Monthly	Required by Permit			
001	TA3-22	2017	Jan	Total Suspended Solids	4.185	4.185	lbs/day	****	2	2	mg/L	30 Monthly Ave 100 Daily Max	mg/L	1	Monthly	Required by Permit			
001	TA3-22	2017	Feb	Total Suspended Solids	3.66	3.66	lbs/day	****	2.4	2.4	mg/L	30 Monthly Ave 100 Daily Max	mg/L	1	Monthly	Required by Permit			
001	TA3-22	2017	Mar	Total Suspended Solids	4.698	4.698	lbs/day	****	5.9	5.9	mg/L	30 Monthly Ave 100 Daily Max	mg/L	1	Monthly	Required by Permit			
001	TA3-22	2017	Apr	Total Suspended Solids	6.613	6.613	lbs/day	****	0.9	0.9	mg/L	30 Monthly Ave 100 Daily Max	mg/L	1	Monthly	Required by Permit			
001	TA3-22	2017	May	Total Suspended Solids	1.4	1.4	lbs/day	****	1.2	1.2	mg/L	30 Monthly Ave 100 Daily Max	mg/L	1	Monthly	Required by Permit			
001	TA3-22	2017	Jun	Total Suspended Solids	1.47	1.47	lbs/day	****	1.5	1.5	mg/L	30 Monthly Ave 100 Daily Max	mg/L	1	Monthly	Required by Permit			
001	TA3-22	2017	Jul	Total Suspended Solids	0.146	0.146	lbs/day	****	1.7	1.7	mg/L	30 Monthly Ave 100 Daily Max	mg/L	1	Monthly	Required by Permit			
001	TA3-22	2017	Aug	Total Suspended Solids	2.85	2.85	lbs/day	****	1.2	1.2	mg/L	30 Monthly Ave 100 Daily Max	mg/L	1	Monthly	Required by Permit			
001	TA3-22	2017	Sept	Total Suspended Solids	0.898	0.898	lbs/day	****	0.753	0.753	mg/L	30 Monthly Ave 100 Daily Max	mg/L	1	Monthly	Required by Permit			
001	TA3-22	2017	Oct	Total Suspended Solids	1.169	1.169	lbs/day	****	1.4	1.4	mg/L	30 Monthly Ave 100 Daily Max	mg/L	1	Monthly	Required by Permit			
001	TA3-22	2017	Nov	Total Suspended Solids	2.03	2.03	lbs/day	****	0.7	0.7	mg/L	30 Monthly Ave 100 Daily Max	mg/L	1	Monthly	Required by Permit			
001	TA3-22	2017	Dec	Total Suspended Solids	1.087	1.087	lbs/day	****	1.5	1.5	mg/L	30 Monthly Ave 100 Daily Max	mg/L	1	Monthly	Required by Permit			
001	TA3-22	2018	Jan	Total Suspended Solids	0.756	0.756	lbs/day	****	<0.57	<0.57	mg/L	30 Monthly Ave 100 Daily Max	mg/L	1	Monthly	Required by Permit			
001	TA3-22	2018	Feb	Total Suspended Solids	2.29	2.29	lbs/day	****	1.4	1.4	mg/L	30 Monthly Ave 100 Daily Max	mg/L	1	Monthly	Required by Permit			
001	TA3-22	2018	Mar	Total Suspended Solids	<0.708	<0.708	lbs/day	****	1.3	1.3	mg/L	30 Monthly Ave 100 Daily Max	mg/L	1	Monthly	Required by Permit			
001	TA3-22	2018	Apr	Total Suspended Solids	<0.632	<0.632	lbs/day	****	2.42	2.42	mg/L	30 Monthly Ave 100 Daily Max	mg/L	1	Monthly	Required by Permit			
001	TA3-22	2018	May	Total Suspended Solids	<0.632	<0.632	lbs/day	****	1	1	mg/L	30 Monthly Ave 100 Daily Max	mg/L	2	Monthly	Required by Permit			
001	TA3-22	2018	Jun	Total Suspended Solids	<0.632	<0.632	lbs/day	****	3.4	3.4	mg/L	30 Monthly Ave 100 Daily Max	mg/L	1	Monthly	Required by Permit			
001	TA3-22	2018	Jul	Total Suspended Solids	2.3	2.3	lbs/day	****	1.99	1.99	mg/L	30 Monthly Ave 100 Daily Max	mg/L	49	Monthly	Required by Permit			
001	TA3-22	2018	Aug	Total Suspended Solids	0.801	0.801	lbs/day	****	7.2	7.2	mg/L	30 Monthly Ave 100 Daily Max	mg/L	49	Monthly	Required by Permit			
001	TA3-22	2018	Sept	Total Suspended Solids	8.63	8.63	lbs/day	****	0.0244	0.0244	mg/L	30 Monthly Ave 100 Daily Max	mg/L	4	Yearly	Required by Permit			
<b>Total Suspended Solids</b>					<b>Daily Average</b>														
<b>Total Suspended Solids</b>					<b>Maximum 30 Day Average</b>														
<b>Total Suspended Solids</b>					<b>Maximum</b>														
001	TA3-22	2015	Sept	Aluminum, Total				****	0.0244	0.0244	mg/L	0.9889	mg/L	1	Yearly	Required by Permit			
001	TA3-22	2016	Sept	Aluminum, Total				****	0.0244	0.0244	mg/L	0.9889	mg/L	1	Yearly	Required by Permit			
001	TA3-22	2017	Sept	Aluminum, Total				****	0.0244	0.0244	mg/L	0.9889	mg/L	3	Yearly	Required by Permit			
001	TA3-22	2018	Sept	Aluminum, Total				****	0.0244	0.0244	mg/L	0.9889	mg/L	4	Yearly	Required by Permit			
<b>Aluminum, Total</b>					<b>Daily Average</b>														
<b>Aluminum, Total</b>					<b>Maximum 30 Day Average</b>														
<b>Aluminum, Total</b>					<b>Maximum</b>														
001	TA3-22	2015	Sept	Copper, Dissolved				****	0.0073	0.0073	mg/L	0.0073	mg/L	1	Yearly	Required by Permit			
001	TA3-22	2016	Sept	Copper, Dissolved				****	0.0073	0.0073	mg/L	0.0073	mg/L	1	Yearly	Required by Permit			
001	TA3-22	2017	Sept	Copper, Dissolved				****	0.0073	0.0073	mg/L	0.0073	mg/L	6	Yearly	Required by Permit			
001	TA3-22	2018	Sept	Copper, Dissolved				****	0.0073	0.0073	mg/L	0.0073	mg/L	2	Yearly	Required by Permit			
<b>Copper, Dissolved</b>					<b>Daily Average</b>														
<b>Copper, Dissolved</b>					<b>Maximum 30 Day Average</b>														
<b>Copper, Dissolved</b>					<b>Maximum</b>														
001	TA3-22	2015	Sept	PCB <sup>a</sup>				****	0.00257	0.00257	ug/L	0.0064 Monthly Ave & Daily Max	ug/L	1	Yearly	Required by Permit			



OUTFALL No.	TA-Bldg.	Year	Monitoring Period	Parameter	Quantity or Loading			Quality or Concentration						Number of Samples	Frequency	Notes	
					Average	Maximum	Units	Minimum	Average	Maximum	Units	Permit Limit	Units				
001	TA3-22	2016	Sept	PCB <sub>7</sub> Total <sup>a</sup>				****	0.00158	0.0019	ug/L	0.00064 Monthly Ave & Daily Max	ug/L	2	Yearly	Required by Permit	
001	TA3-22	2017	Sept	PCB <sub>7</sub> Total <sup>a</sup>				****	0	0	ug/L	0.00064 Monthly Ave & Daily Max	ug/L	1	Yearly	Required by Permit	
001	TA3-22	2018	Sept	PCB <sub>7</sub> Total <sup>a</sup>				****	0.009	0.013	ug/L	0.00064 Monthly Ave & Daily Max	ug/L	2	Yearly	Required by Permit	
a. Results were obtained using the EPA published Congener Method 1668 Revision and detection limits. The method and detection limits allow for lower concentrations to be detected than the Aroclor method required for the analytical results provided in the Form 2C.																	
					PCB <sub>7</sub> Total	Daily Average			0.0033		mg/L						
					PCB <sub>7</sub> Total	Maximum 30 Day Average				0.0044	mg/L						
					PCB <sub>7</sub> Total	Maximum		****	1.36	0.0130	mg/L			6			
					Adjusted Gross Alpha				1.36	1.36	pCi/L	NA		1	Term	Required by Permit	
					Adjusted Gross Alpha	Daily Average					pCi/L						
					Adjusted Gross Alpha	Maximum 30 Day Average					pCi/L						
					Adjusted Gross Alpha	Maximum				1.36	pCi/L			1			

# **SODIUM HYDROXIDE**

UNIVAR USA INC.  
ISSUE DATE:2015-04-29  
Annotation:

Distributed By:



2 Madison Ave. Larchmont, NY 10538  
Ph: 914-834-1881 Fax: 914-834-4611

MSDS NO:10000088  
VERSION:001 2015-04-29



Univar  
3075 Highland Pkwy STE 200  
Downers Grove, IL 60515  
425-889-3400

## SAFETY DATA SHEET

### 1. Identification

**Product identifier:** CAUSTIC SODA 50%

**Other means of identification**

**Synonyms:** Sodium Hydroxide

**SDS number:** 000100000088

**Recommended use and restriction on use**

**Recommended use:** Not available.

**Restrictions on use:** Not known.

**Emergency telephone number:**For emergency assistance involving chemicals

call CHEMTREC day or night at: 1-800-424-9300. CHEMTREC INTERNATIONAL Tel# 703-527-3887

### 2. Hazard(s) identification

**Hazard classification**

**Health hazards**

Acute toxicity (Oral) Category 4

Skin corrosion/irritation Category 1A

Serious eye damage/eye irritation Category 1

**Environmental hazards**Acute hazards Category 3  
to the aquatic environment

**Label elements**

**Hazard symbol**



UNIVAR USA INC.  
 ISSUE DATE:2015-04-29  
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 VERSION:001 2015-04-29

Version: 1.2  
 Revision date: 04/29/2015




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<b>Signal word</b>	Danger
<b>Hazard statement</b>	Corrosive. Harmful if swallowed. Causes severe skin burns and eye damage.
<b>Precautionary statement</b>	
<b>Prevention</b>	Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Do not breathe dust or mists. Wear protective gloves/protective clothing/eye protection/face protection.
<b>Response</b>	IF INHALED: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. IF SWALLOWED: Call a POISON CENTER/doctor/ if you feel unwell. Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER/doctor. Specific treatment (see this label). Wash contaminated clothing before reuse.
<b>Storage</b>	Store in a closed container. Keep container tightly closed. Store in a well-ventilated place. Store in a dry place. Store locked up.
<b>Disposal</b>	Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.
<b>Other hazards which do not result in GHS classification</b>	None.

SDS\_US - 000100000088

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UNIVAR USA INC.  
 ISSUE DATE:2015-04-29  
 Annotation:

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 VERSION:001 2015-04-29

Version: 1.2  
 Revision date: 04/29/2015



### 3. Composition/information on ingredients

#### Substances

Chemical identity	Common name and synonyms	CAS number	Content in percent (%)*
Sodium hydroxide		1310-73-2	>=48 - <=52%
Water		7732-18-5	>=48 - <=52%
Sodium Chloride		7647-14-5	>=0 - <=5%

\* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

### 4. First-aid measures

**General information:** CAUTION! First aid personnel must be aware of own risk during rescue!

**Ingestion:** Do NOT induce vomiting. Never give liquid to an unconscious person. Get medical attention immediately.

**Inhalation:** Move to fresh air. If breathing is difficult, give oxygen. Perform artificial respiration if breathing has stopped. Get medical attention immediately.

**Skin contact:** Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.

**Eye contact:** If in eyes, hold eyes open, flood with water for at least 15 minutes and see a doctor.

**Most important symptoms/effects, acute and delayed**

**Symptoms:** No data available.

#### Indication of immediate medical attention and special treatment needed

**Treatment:** No data available.

### 5. Fire-fighting measures

**General fire hazards:** No data available.

**Suitable (and unsuitable) extinguishing media**

**Suitable extinguishing media:** Use: Powder. In case of fire in the surroundings: all extinguishing agents allowed.

**Unsuitable extinguishing media:** No data available.

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Version: 1.2  
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**Specific hazards arising from the chemical:** No data available.

**Special protective equipment and precautions for firefighters**  
**Special fire fighting procedures:** No data available.

**Special protective equipment for fire-fighters:** No data available.

#### 6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures:** Use personal protective equipment. Keep unauthorized personnel away.

**Methods and material for containment and cleaning up:** Absorb spillage with non-combustible, absorbent material. Dike for later disposal.

#### 7. Handling and storage

**Precautions for safe handling:** Use personal protective equipment as required. Use only with adequate ventilation. Container must be kept tightly closed.

**Conditions for safe storage, including any incompatibilities:** No data available.

UNIVAR USA INC.  
 ISSUE DATE:2015-04-29  
 Annotation:

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 VERSION:001 2015-04-29

Version: 1.2  
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## 8. Exposure controls/personal protection

### Control parameters

#### Occupational exposure limits

Chemical identity	Type	Exposure Limit values	Source
Sodium hydroxide	Ceiling	2 mg/m <sup>3</sup>	US. ACGIH Threshold Limit Values (03 2013)
	Ceil_Tim e	2 mg/m <sup>3</sup>	US. NIOSH: Pocket Guide to Chemical Hazards (2010)
	PEL	2 mg/m <sup>3</sup>	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
	Ceiling	2 mg/m <sup>3</sup>	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)
	Ceiling	2 mg/m <sup>3</sup>	US. Tennessee. OELs. Occupational Exposure Limits, Table Z1A (06 2008)
Sodium hydroxide - Particulate.	ST ESL	20 µg/m <sup>3</sup>	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (02 2013)
	AN ESL	2 µg/m <sup>3</sup>	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (02 2013)
Sodium hydroxide	Ceiling	2 mg/m <sup>3</sup>	US. California Code of Regulations, Title 8, Section 5155. Airborne Contaminants (02 2012)

**Appropriate engineering controls** No data available.

#### Individual protection measures, such as personal protective equipment

##### General information:

Use personal protective equipment as required. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing to remove contaminants. Discard contaminated footwear that cannot be cleaned. Practice good housekeeping.

##### Eye/face protection:

Use personal protective equipment as required. Wear goggles/face shield.

##### Skin protection

##### Hand protection:

No data available.

##### Other:

No data available.

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**Respiratory protection:** No data available.  
**Hygiene measures:** No data available.

### 9. Physical and chemical properties

<b>Physical state:</b>	Liquid
<b>Form:</b>	No data available.
<b>Color:</b>	No data available.
<b>Odor:</b>	No data available.
<b>Odor threshold:</b>	No data available.
<b>pH:</b>	14
<b>Melting point/freezing point:</b>	-12 - 10 °C
<b>Initial boiling point and boiling range:</b>	105 - 140 °C
<b>Flash Point:</b>	No data available.
<b>Evaporation rate:</b>	No data available.
<b>Flammability (solid, gas):</b>	No data available.
<b>Upper/lower limit on flammability or explosive limits</b>	
<b>Flammability limit - upper (%):</b>	No data available.
<b>Flammability limit - lower (%):</b>	No data available.
<b>Explosive limit - upper (%):</b>	No data available.
<b>Explosive limit - lower (%):</b>	No data available.
<b>Vapor pressure:</b>	No data available.
<b>Vapor density:</b>	No data available.
<b>Relative density:</b>	No data available.
<b>Solubility(ies)</b>	
<b>Solubility in water:</b>	No data available.
<b>Solubility (other):</b>	No data available.
<b>Partition coefficient (n-octanol/water):</b>	No data available.
<b>Auto-ignition temperature:</b>	No data available.
<b>Decomposition temperature:</b>	No data available.
<b>Viscosity:</b>	No data available.



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Version: 1.2  
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## 10. Stability and reactivity

<b>Reactivity:</b>	No data available.
<b>Chemical stability:</b>	No data available.
<b>Possibility of hazardous reactions:</b>	No data available.
<b>Conditions to avoid:</b>	No data available.
<b>Incompatible materials:</b>	No data available.
<b>Hazardous decomposition products:</b>	No data available.

## 11. Toxicological information

### Symptoms related to the physical, chemical and toxicological characteristics

<b>Ingestion:</b>	No data available.
<b>Inhalation:</b>	No data available.
<b>Skin contact:</b>	No data available.
<b>Eye contact:</b>	No data available.

### Information on toxicological effects

#### Acute toxicity (list all possible routes of exposure)

##### Oral

**Product:** ATEmix ( ): 353.488372 mg/kg

##### Dermal

**Product:** Not classified for acute toxicity based on available data.

##### Inhalation

**Product:** No data available.

#### Specified substance(s):

Sodium Chloride LC 50 (Rat, ): > 42 mg/l 2 (reliable with restrictions)

#### Repeated dose toxicity

**Product:** No data available.

#### Skin corrosion/irritation

**Product:** No data available.

#### Serious eye damage/eye irritation

**Product:** No data available.

#### Respiratory or skin sensitization

**Product:** No data available.

#### Carcinogenicity

**Product:** No data available.

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**IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:**  
 No carcinogenic components identified

**US. National Toxicology Program (NTP) Report on Carcinogens:**  
 No carcinogenic components identified

**US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050):**  
 No carcinogenic components identified

**Germ cell mutagenicity**

**In vitro**

**Product:** No data available.

**In vivo**

**Product:** No data available.

**Reproductive toxicity**

**Product:** No data available.

**Specific target organ toxicity - single exposure**

**Product:** No data available.

**Specific target organ toxicity - repeated exposure**

**Product:** No data available.

**Aspiration hazard**

**Product:** No data available.

**Other effects:** No data available.

## 12. Ecological information

**Ecotoxicity:**

**Acute hazards to the aquatic environment:**

**Fish**

**Product:** No data available.

**Specified substance(s):**

Sodium hydroxide LC 50 (Western mosquitofish (*Gambusia affinis*), 24 h): 125 mg/l Mortality  
 LC 50 (Guppy (*Poecilia reticulata*), 24 h): 145 mg/l Mortality LC 50 (Goldfish  
 (*Carassius auratus*), 24 h): 160 mg/l Mortality LC 50 (Bony fish superclass  
 (*Osteichthyes*), 48 h): 33 - 100 mg/l Mortality LC 50 (Western mosquitofish  
 (*Gambusia affinis*), 48 h): 125 mg/l Mortality

**Aquatic invertebrates**

**Product:** No data available.

**Specified substance(s):**

Sodium hydroxide EC 50 (Water flea (*Ceriodaphnia dubia*), 48 h): 34.59 - 47.13 mg/l  
 Intoxication LC 50 (Common shrimp, sand shrimp (*Crangon crangon*), 48 h):  
 33 - 100 mg/l Mortality LC 50 (Cockle (*Cerastoderma edule*), 48 h): 330 -

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	1,000 mg/l Mortality
<b>Chronic hazards to the aquatic environment</b>	
<b>Fish</b>	
Product:	No data available.
<b>Aquatic invertebrates</b>	
Product:	No data available.
<b>Toxicity to Aquatic Plants</b>	
Product:	No data available.
<b>Persistence and degradability</b>	
<b>Biodegradation</b>	
Product:	No data available.
<b>BOD/COD ratio</b>	
Product:	No data available.
<b>Bioaccumulative potential</b>	
<b>Bioconcentration factor (BCF)</b>	
Product:	No data available.
<b>Partition coefficient n-octanol / water (log Kow)</b>	
Product:	No data available.
<b>Mobility in soil:</b>	
	No data available.
<b>Known or predicted distribution to environmental compartments</b>	
Sodium hydroxide	No data available.
Water	No data available.
Sodium chloride	No data available.
<b>Known or predicted distribution to environmental compartments</b>	
Water	No data available.

### 13. Disposal considerations

**Disposal instructions:** No data available.  
**Contaminated packaging:** No data available.

### 14. Transport information

#### DOT

UN number: UN 1824  
 UN proper shipping name: Sodium hydroxide solution  
 Transport hazard class(es)  
 Class: 8  
 Label(s): 8  
 Packing group: II  
 Marine Pollutant: Not regulated.

SDS\_US - 00010000088

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Special precautions for user: —

**IMDG**

UN number: UN 1824  
 UN proper shipping name: SODIUM HYDROXIDE SOLUTION  
 Transport hazard class(es)  
 Class: 8  
 Label(s): 8  
 EmS No.: F-A, S-B  
 Packing group: II  
 Marine Pollutant: Not regulated.  
 Special precautions for user: —

**IATA**

UN number: UN 1824  
 Proper Shipping Name: Sodium hydroxide solution  
 Transport hazard class(es):  
 Class: 8  
 Label(s): 8  
 Packing group: II  
 Environmental hazards: Not regulated.  
 Special precautions for user: —

Other information  
 Passenger and cargo aircraft: Allowed.  
 Cargo aircraft only: Allowed.

#### 15. Regulatory information

**US federal regulations US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)**

None present or none present in regulated quantities.

**CERCLA Hazardous Substance List (40 CFR 302.4):**

Sodium hydroxide Reportable quantity: 1000 lbs.

**Superfund amendments and reauthorization act of 1986 (SARA)**

**Hazard categories**

Not listed.



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**SARA 302 Extremely hazardous substance**

None present or none present in regulated quantities.

**SARA 304 Emergency release notification**

Chemical identity	RQ
Sodium hydroxide	1000 lbs.

**SARA 311/312 Hazardous chemical**

Chemical identity	Threshold Planning Quantity
Sodium hydroxide	500 lbs
Sodium Chloride	500 lbs

**SARA 313 (TRI reporting)**

None present or none present in regulated quantities.

**Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3)**

Sodium hydroxide Reportable quantity: 1000 lbs.

**Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):**

None present or none present in regulated quantities.

**US state regulations**

**US. California Proposition 65**

No ingredient regulated by CA Prop 65 present.

**US. New Jersey Worker and Community Right-to-Know Act**

Sodium hydroxide Listed

**US. Massachusetts RTK - Substance List**

Sodium hydroxide Listed

**US. Pennsylvania RTK - Hazardous Substances**

Sodium hydroxide Listed

**US. Rhode Island RTK**

Sodium hydroxide Listed

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<b>Inventory Status:</b> Australia AICS:	Not in compliance with the inventory.
Canada DSL Inventory List:	Not in compliance with the inventory.
EU EINECS List:	Not in compliance with the inventory.
EU ELINCS List:	Not in compliance with the inventory.
Japan (ENCS) List:	Not in compliance with the inventory.
EU No Longer Polymers List:	Not in compliance with the inventory.
China Inv. Existing Chemical Substances:	Not in compliance with the inventory.
Korea Existing Chemicals Inv. (KECI):	Not in compliance with the inventory.
Canada NDSL Inventory:	Not in compliance with the inventory.
Philippines PICCS:	Not in compliance with the inventory.
US TSCA Inventory:	On or in compliance with the inventory
New Zealand Inventory of Chemicals:	Not in compliance with the inventory.
Japan ISHL Listing:	Not in compliance with the inventory.
Japan Pharmacopoeia Listing:	Not in compliance with the inventory.

#### 16. Other information, including date of preparation or last revision

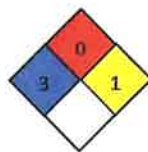
#### HMIS Hazard ID

Health	*	3
Flammability		0
Physical hazards		1
PERSONAL PROTECTION		B

B - Safety Glasses & Gloves

Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe; \*Chronic health effect

#### NFPA Hazard ID



	Flammability
	Health
	Reactivity
	Special hazard.

Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe

Issue date: 04/29/2015  
 Revision date: No data available.  
 Version #: 1.2  
 Further information: No data available.

# **ATTACHMENT 3**

## **Editorial Corrections to the NPDES-FS-18-003-R1, Outfall 03A027 Fact Sheet**

**EPC-DO: 19-299**

**LA-UR-19-28240**

**Date:**                     **AUG 19 2019**

# **Industrial and Sanitary Outfalls 2019 NPDES Permit Re-Application Outfall 03A027 Fact Sheet**

Utilities and Infrastructure (U&I)  
Strategic Computing Complex (SCC) Cooling Towers





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## List of Tables

- Sources for Discharges to Outfall 03A027
- Wastewater Treatment Codes Assigned to Outfall 03A027
- List of Treatment Chemicals used in the Operations that Contribute to Outfall 03A027
- Flow Rates and Frequencies for Discharges to Outfall 03A027
- Potential Future Flow Rates and Frequencies for Outfall 03A027
- Potential Pollutants by Source for Outfall 03A027
- List of Independent Laboratories Used for NPDES Water Analysis

## Revision Log

<u>Revision No.</u>	<u>Date</u>	<u>Page Nos.</u>	<u>Change Description</u>
<u>0</u>	<u>3/21/2019</u>	<u>NA</u>	<u>Original</u>
<u>1</u>	<u>7/31/2019</u>	<u>Page 6 of 10, Table 3</u>	<u>Revised to remove the chemical concentration percentages. Updated the chemical information for C358 and R-630 for the SCC Cooling Towers. Deleted WEST C-825 because the chemical is no longer in use.</u>
		<u>Page 8 of 10, Table 5</u>	<u>Correct the flow rates in Table 5 to be consistent with the fact sheet for Outfall 001. Review of the calculation verified that the fact sheet for Outfall 001 was correct.</u>
		<u>Page 8 of 10, Table 6</u>	<u>Updated the potential chemicals associated with the SCC Cooling Towers to match Table 3.</u>
		<u>Attachment C, page C8</u>	<u>Deleted Photograph NPDES 03A027-18-013, which shows the pH adjustment Chemical Feed Tank that is no longer in use.</u>
		<u>Attachment D, page D6 and D7</u>	<u>Revised Copper to "Copper, Dissolved" to be consistent with the wording used in the existing permit.</u>
		<u>Attachment D, page D7</u>	<u>Revised the summary line for Aluminum to "Aluminum, Total" to be consistent with the wording used in the existing permit.</u>
		<u>Attachment D, page D7</u>	<u>Revised Gross Alpha to "Adjusted Gross Alpha"</u>
		<u>Attachment E, page 178</u>	<u>Replaced the MSDS for WEST C-358P Inhibitor with the current SDS.</u>
		<u>Attachment E, page 183</u>	<u>Deleted the MSDS for C-825 because the chemical is no longer used.</u>
		<u>Attachment E, page 189</u>	<u>Replaced the MSDS for WEST R-630 with the current SDS.</u>
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

Source	Treatment Code	Description	Justification
SCC Cooling Towers	2-E	Dechlorination	Chlorine Scavenger Chemicals are Added
	2-H	Disinfection (other)	Chemicals are added to Control Microorganisms
	2-L	Reduction	Chemicals that are Antiscalant and Corrosion Inhibitors are Added

SCC = Strategic Computing Complex;

The water treatment processes identified in Table 2 utilize chemicals to monitor the water quality in the cooling tower, control corrosion, limit biological growth, and de-chlorinate blowdown prior to discharge. Table 3 provides a list of the chemicals used to treat the water.

Source	Chemical Name	Reason for Use	Toxic Pollutant and/or Hazardous Substances Table 2C-3 or 2C-4	
SCC Cooling Towers	Bromine Tablets	Biocide	Bromo-chloro-5,5-dimethyl hydantoin (chlorine source)	2C-4
	HACH 203832	Sulfuric Acid Solution 19.2N	Sulfuric Acid	2C-4
	HACH 1407028	Free Chlorine Reagent	Sodium Phosphate Dibasic	2C-4
			EDTA	2C-4
	HACH 2076053	Molybdovanadate Reagent	Sulfuric Acid	2C-4
	HACH 2105669	Total Chlorine Reagent	Sodium Phosphate Dibasic	2C-4
	HACH 2263411	Total Chlorine Indicator	Sulfuric Acid	2C-4
	HACH 2263511	Total Chlorine Buffer Solution	Sodium Hydroxide	2C-4
			EDTA	2C-4
	HACH 2297255	Compound for Free and Total Chlorine Analyzers	NA	NA
	HACH 2314011	Free Chlorine Indicator Solution for CL-17 Analyzer	Toluene	2C-4
	HACH 2314111	Free Chlorine Buffer for CL-117 Analyzer	NA	NA
	HACH 2756549	pH Storage Solution	Sodium Phosphate Dibasic	2C-4
	C-358 <sup>AP</sup>	Corrosion Inhibitor & Antiscalant	Potassium Hydroxide Sodium Hydroxide	2C-4
	WEST C-825	pH control (neutralization)	Sodium Bisulfite	2C-4
R-630	Dechlorination	Sodium Metabisulfite Bisulfite	2C-4	
Bright Dyes FLT Yellow/Green Liquid	Water Line & Drain Tracing Dye	NA	NA	
Bright Dyes FLT Yellow/Green Tablet	Water Line & Drain Tracing Dye	NA	NA	
SERF Treatment Chemicals <sup>a</sup>	<del>40%</del> Ferric Chloride	Promote Precipitation	Ferric Chloride	2C-4
	<del>25%</del> Magnesium Chloride	Promote Precipitation	Magnesium Chloride	NA
	<del>33%</del> Hydrochloric Acid	pH Adjustment	Hydrochloric Acid	2C-4
	<del>35%</del> Sodium Hypochlorite	Clean/Disinfect RO Units	Sodium Hypochlorite	2C-4
	<del>25%</del> Sodium Hydroxide	pH Adjustment	Sodium Hydroxide	2C-4

Source	Chemical Name	Reason for Use	Toxic Pollutant and/or Hazardous Substances Table 2C-3 or 2C-4	
	38% Sodium Bisulfite	Injected prior to the RO Unit as a de-chlorinating Agent.	Sodium Bisulfite	2C-4
	Perma Treat PC-510T	RO Unit Antiscalant Polymer	Sodium Nitrite	2C-4
	Bright Dyes FLT Yellow/Green Liquid	Water Line & Drain Tracing Dye	NA	NA
	Bright Dyes FLT Yellow/Green Tablet	Water Line & Drain Tracing Dye	NA	NA
SWWS Treatment Chemicals <sup>b</sup>	Clarifloc C-6265	Polymer Flocculation Agent	NA	NA
	Dog Food	Food Source for Microorganisms	NA	NA
	Glycerin	Carbon Source for Microorganisms	NA	NA
	Sodium Bisulfite	Dechlorination	Sodium Bisulfite	2C-4
	Soda Ash [Na <sub>2</sub> CO <sub>3</sub> ]	Add Alkalinity	Sodium carbonate	NA
	Sodium Chloride	Chlorine Source for Disinfection Using the MIOX System	Chlorine	2C-4
	Sulfur Dioxide	Dechlorination	NA	NA
	Bright Dyes FLT Yellow/Green Liquid	Water Line & Drain Tracing Dye	NA	NA
Bright Dyes FLT Yellow/Green Tablet	Water Line & Drain Tracing Dye	NA	NA	
<p>a. See the permit application section provided for Outfall 001 for the Safety Data Sheets associated with SERF.</p> <p>b. See the permit application section provided for Outfall 13S for the Safety Data Sheets associated with SWWS.</p> <p>EDTA = Ethylene Diamine Tetraacetic Acid; MIOX = mixed oxide; NA = not applicable; RO = reverse osmosis; SCC = Strategic Computing Complex; SERF = Sanitary Effluent Reclamation Facility; SWWS = Sanitary Wastewater System</p>				

The blowdown from the SCC Cooling Towers can be routed to discharge at Outfall 03A027; discharge at Outfall 001; the Reuse Tank at the Power Plant for recycle at SERF; or discharge to the SWWS treatment plant. The route of the blowdown is determined by demand, volume, and outfall/equipment availability. Attachment E provides the Safety Data Sheets (SDS) associated with the water treatment system at the SCC Cooling Towers. The permit application sections provided for Outfalls 001 and 13S provide the SDSs for SERF and the SWWS, respectively.

### 2.3 Discharge Rate and Frequency [II.C]

The discharge rates and frequencies for Outfall 03A027 are provided in Table 4.

Source <sup>a, b</sup>	Frequency		Flow Rates and Volumes				
	Days/Week	Months	Average (MGD)	Maximum (MGD)	Average Volume (GPD)	Maximum Volume (GPD)	Duration (days)
SCC Cooling Towers (10 towers)	7	12	0.051	0.105	50,679	104,804	365

- a. Blowdown from the SCC Cooling Towers may be routed to Outfall 03A027, Outfall 001, or the SWWS as needed to allow for water recycling, construction, and/or maintenance activities.
- b. Calculated between October 2017 and September 2016.

GPD = gallons per day; MGD = million gallons per day; SCC = Strategic Computing Complex



### 3.0 PRODUCTION [Section III]

Section III is not applicable to Outfall 03A027.

### 4.0 IMPROVEMENTS [Section IV]

The SCC is currently adding 5 additional cooling towers to its cooling system. These towers will utilize the existing water treatment system and makeup water supply described in Section 2.3. A Notice of Change will be submitted for these future changes prior to their implementation and impact to the outfall. Table 5 provides an estimate for the future flow rates and frequencies of makeup water and blowdown when the new towers come online. Attachment B provides a proposed schematic and water balance for the future configuration.

Source	Frequency		Flow Rates and Volumes				Duration (days)
	Days/Week	Months	Average (MGD)	Maximum (MGD)	Average Volume (GPD)	Maximum Volume (GPD)	
SCC Cooling Towers (15 Towers)	7.0	12	0.0746	0.201457	74,436	201,056	365

GPD = gallons per day; MGD = million gallons per day; SCC = Strategic Computing Center

### 5.0 INTAKE AND EFFLUENT CHARACTERISTICS [Section V]

#### 5.1 Analytical Data [V.A, B, and C]

The analytical results provided for the Outfall 03A027 Permit Reapplication on the Form 2C were provided from the following sources:

- Samples collected on August 29, 2018 and shipped to an independent laboratory for analysis.
- Field samples collected and analyzed on August 29, 2018 for temperature, residual chlorine, and pH.
- Field samples collected and analyzed on February 4, 2019 for sulfite.
- Discharge monitoring report summary for Outfall 03A027 from October 2014 to September 2018 (Attachment D).
- Hardness = 26 mg/L (CaCO<sub>3</sub>)

#### 5.2 Potential Pollutants [V.D]

The treatment chemicals associated with the SCC Cooling Tower water treatment system, the use of potable water, and the reuse of SWWS effluent that has been conditioned at the SERF constitutes the pollutant load of the discharge to Outfall 03A027. Table 6 identifies the Table 2C-3 and 2C-4 pollutants by discharge source. It also identifies those pollutants (if any) that were detected in the analytical results from the samples collected for the 2019 Permit Renewal Application.

Source	POTENTIAL Toxic Pollutant and/or Hazardous Substances Table 2C-3 or 2C-4	Analytical Data Results from Operational Samples Collected for Outfall 03A027 <sup>a</sup>	
SCC Cooling Tower Water Treatment Chemicals	EDTA	2C-4	pH = 7.4 – 9.1 S.U.
	Potassium Hydroxide	2C-4	pH = 7.4 – 9.1 S.U.
	Sodium Bisulfite/Metabisulfite	2C-4	Sulfite 6.0 mg/L
	Sodium Hydroxide	2C-4	pH = 7.4 – 9.1 S.U.
	Sodium Phosphate Dibasic	2C-4	Total Phosphorus = 3.55 mg/L
	Sulfuric Acid	2C-4	pH = 7.4 – 9.1 S.U.
	Toluene	2C-4	Not Detected (VOC)
Chlorine	2C-4	Total Residual Chlorine = 0	



**Photograph - NPDES-03A027-18-012  
SCC Trinity Cooling Towers - Brominators**

**Photograph - NPDES-03A027-18-013  
SCC Trinity Cooling Towers - pH Adjustment Chemical Feed Tank**

OUTFALL No.	TA - Bldg.	Year	Monitoring Period	Parameter	Quantity or Loading			Quality or Concentration							Units	Number of Samples	Frequency	Notes
					Average	Maximum	Units	Minimum	Average	Maximum	Units	Permit Limit	Permit Requirement					
03A027	TA3-2327	2015	Mar	Total Suspended Solids				2.6	2.6	mg/L	30 Monthly, 100 Daily Max	mg/L	1	Quarterly	Permit Requirement			
03A027	TA3-2327	2015	Jun	Total Suspended Solids				2.3	2.3	mg/L	30 Monthly, 100 Daily Max	mg/L	1	Quarterly	Permit Requirement			
03A027	TA3-2327	2015	Sept	Total Suspended Solids				2	2	mg/L	30 Monthly, 100 Daily Max	mg/L	1	Quarterly	Permit Requirement			
03A027	TA3-2327	2015	Dec	Total Suspended Solids				1.3	1.3	mg/L	30 Monthly, 100 Daily Max	mg/L	1	Quarterly	Permit Requirement			
03A027	TA3-2327	2016	Mar	Total Suspended Solids				1.5	1.5	mg/L	30 Monthly, 100 Daily Max	mg/L	1	Quarterly	Permit Requirement			
03A027	TA3-2327	2016	Jun	Total Suspended Solids				2.2	2.2	mg/L	30 Monthly, 100 Daily Max	mg/L	1	Quarterly	Permit Requirement			
03A027	TA3-2327	2016	Sept	Total Suspended Solids				4.86	5.52	mg/L	30 Monthly, 100 Daily Max	mg/L	2	Quarterly	Permit Requirement			
03A027	TA3-2327	2016	Dec	Total Suspended Solids				****	****	mg/L	30 Monthly, 100 Daily Max	mg/L	0	Quarterly	Discharged to Outfall 001			
03A027	TA3-2327	2017	Mar	Total Suspended Solids				****	****	mg/L	30 Monthly, 100 Daily Max	mg/L	0	Quarterly	Discharged to Outfall 001			
03A027	TA3-2327	2017	Jun	Total Suspended Solids				****	****	mg/L	30 Monthly, 100 Daily Max	mg/L	0	Quarterly	Discharged to Outfall 001			
03A027	TA3-2327	2017	Sept	Total Suspended Solids				****	****	mg/L	30 Monthly, 100 Daily Max	mg/L	0	Quarterly	Discharged to Outfall 001			
03A027	TA3-2327	2017	Dec	Total Suspended Solids				****	****	mg/L	30 Monthly, 100 Daily Max	mg/L	0	Quarterly	Discharged to Outfall 001			
03A027	TA3-2327	2018	Mar	Total Suspended Solids				****	****	mg/L	30 Monthly, 100 Daily Max	mg/L	0	Quarterly	Discharged to Outfall 001			
03A027	TA3-2327	2018	Jun	Total Suspended Solids				****	****	mg/L	30 Monthly, 100 Daily Max	mg/L	0	Quarterly	Discharged to Outfall 001			
03A027	TA3-2327	2018	Aug	Total Suspended Solids				1.9	1.9	mg/L	30 Monthly, 100 Daily Max	mg/L	1	Operational Sample	2019 Permit Application			
03A027	TA3-2327	2018	Sept	Total Suspended Solids				****	****	mg/L	30 Monthly, 100 Daily Max	mg/L	0	Quarterly	Discharged to Outfall 001			
Total Suspended Solids					Daily Average			2.3		mg/L			10					
Total Suspended Solids					Maximum 30 Day Average			4.86		mg/L			10					
Total Suspended Solids									5.52	mg/L			10					
03A027	TA3-2327	2014	Dec	Phosphorus, Total				3.19	3.19	mg/L	20 Monthly, 40 Daily Max	mg/L	1	Quarterly	Permit Requirement			
03A027	TA3-2327	2015	Mar	Phosphorus, Total				3.19	3.19	mg/L	20 Monthly, 40 Daily Max	mg/L	1	Quarterly	Permit Requirement			
03A027	TA3-2327	2015	Jun	Phosphorus, Total				3.2	3.2	mg/L	20 Monthly, 40 Daily Max	mg/L	1	Quarterly	Permit Requirement			
03A027	TA3-2327	2015	Sept	Phosphorus, Total				3.55	3.55	mg/L	20 Monthly, 40 Daily Max	mg/L	1	Quarterly	Permit Requirement			
03A027	TA3-2327	2015	Dec	Phosphorus, Total				2.04	2.04	mg/L	20 Monthly, 40 Daily Max	mg/L	1	Quarterly	Permit Requirement			
03A027	TA3-2327	2016	Mar	Phosphorus, Total				0.239	0.239	mg/L	20 Monthly, 40 Daily Max	mg/L	1	Quarterly	Permit Requirement			
03A027	TA3-2327	2016	Jun	Phosphorus, Total				0.929	0.929	mg/L	20 Monthly, 40 Daily Max	mg/L	1	Quarterly	Permit Requirement			
03A027	TA3-2327	2016	Sept	Phosphorus, Total				1.55	1.55	mg/L	20 Monthly, 40 Daily Max	mg/L	1	Quarterly	Permit Requirement			
03A027	TA3-2327	2016	Dec	Phosphorus, Total				****	****	mg/L	20 Monthly, 40 Daily Max	mg/L	0	Quarterly	Discharged to Outfall 001			
03A027	TA3-2327	2017	Mar	Phosphorus, Total				****	****	mg/L	20 Monthly, 40 Daily Max	mg/L	0	Quarterly	Discharged to Outfall 001			
03A027	TA3-2327	2017	Jun	Phosphorus, Total				****	****	mg/L	20 Monthly, 40 Daily Max	mg/L	0	Quarterly	Discharged to Outfall 001			
03A027	TA3-2327	2017	Sept	Phosphorus, Total				****	****	mg/L	20 Monthly, 40 Daily Max	mg/L	0	Quarterly	Discharged to Outfall 001			
03A027	TA3-2327	2017	Dec	Phosphorus, Total				****	****	mg/L	20 Monthly, 40 Daily Max	mg/L	0	Quarterly	Discharged to Outfall 001			
03A027	TA3-2327	2018	Mar	Phosphorus, Total				****	****	mg/L	20 Monthly, 40 Daily Max	mg/L	0	Quarterly	Discharged to Outfall 001			
03A027	TA3-2327	2018	Jun	Phosphorus, Total				****	****	mg/L	20 Monthly, 40 Daily Max	mg/L	0	Quarterly	Discharged to Outfall 001			
03A027	TA3-2327	2018	Aug	Phosphorus, Total				1.87	1.87	mg/L	****	****	1	Operational Sample	2019 Permit Application			
03A027	TA3-2327	2018	Aug	Phosphorus, Total				****	****	mg/L	20 Monthly, 40 Daily Max	mg/L	0	Quarterly	Discharged to Outfall 001			
Phosphorus, Total					Daily Average			2.20		mg/L			9					
Phosphorus, Total					Maximum 30 Day Average			3.55		mg/L			9					
Phosphorus, Total									3.55	mg/L			9					
03A027	TA3-2327	2015	Sept	Chromium VI				0.00641	0.00641	mg/L	NA	NA	1	Term	Permit Requirement			
Chromium VI					Daily Average			0.00641		mg/L			1					
Chromium VI					Maximum 30 Day Average			0.00641		mg/L			1					
Chromium VI									0.00641	mg/L			1					
03A027	TA3-2327	2015	Sept	Copper, Dissolved				0.0181	0.0181	mg/L	NA	NA	1	Yearly	Permit Requirement			
03A027	TA3-2327	2016	Sept	Copper, Dissolved				0.00847	0.00847	mg/L	NA	NA	2	Yearly	Permit Requirement			
03A027	TA3-2327	2017	Sept	Copper, Dissolved				****	****	mg/L	NA	NA	0	Yearly	Discharged to Outfall 001			

OUTFALL No.	TA - Bldg.	Year	Monitoring Period	Parameter	Quantity or Loading			Quality or Concentration					Units	Permit Limit	Number of Samples	Frequently Operational Sample	Notes
					Average	Maximum	Units	Minimum	Average	Maximum	Units						
03A027	TA3-2327	2018	Aug	Copper, Dissolved				0.0163	0.0163	mg/L	NA	NA	1	Operational Sample	2019 Permit Application		
03A027	TA3-2327	2018	Sept	Copper, Dissolved				0.0143	0.0143	mg/L	NA	NA	0	Yearly	Discharged to Outfall 001		
				<b>Copper, Dissolved</b>	Daily Average			<b>0.0143</b>					<b>4</b>				
				<b>Copper, Dissolved</b>	Maximum 30 Day Average			<b>0.0181</b>					<b>4</b>				
				<b>Copper, Dissolved</b>	Maximum				<b>0.0181</b>				<b>4</b>				
03A027	TA3-2327	2015	Sept	Aluminum, Total				0.0232	0.0232	mg/L	NA	NA	1	Yearly	Permit Requirement		
03A027	TA3-2327	2016	Sept	Aluminum, Total				0.0156	0.0156	mg/L	NA	NA	1	Yearly	Permit Requirement		
03A027	TA3-2327	2017	Sept	Aluminum, Total				0.0156	0.0156	mg/L	NA	NA	0	Yearly	Discharged to Outfall 001		
03A027	TA3-2327	2018	Aug	Aluminum, Total				<0.0193	<0.0193	mg/L	NA	NA	1	Operational Sample	2019 Permit Application		
03A027	TA3-2327	2018	Sept	Aluminum, Total				0.0194	0.0194	mg/L	NA	NA	0	Yearly	Discharged to Outfall 001		
				<b>Aluminum, Total</b>	Daily Average			<b>0.0194</b>					<b>3</b>				
				<b>Aluminum, Total</b>	Maximum 30 Day Average			<b>0.0232</b>					<b>3</b>				
				<b>Aluminum, Total</b>	Maximum				<b>0.0232</b>				<b>3</b>				
03A027	TA3-2327	2015	Sept	PCBs, Total				0.000269	0.000269	ug/L	0.00064 Monthly Ave, 0.000642 Daily Max	ug/L	1	Yearly	Permit Requirement		
03A027	TA3-2327	2016	Sept	PCBs, Total				0.000269	0.000269	ug/L	0.00064 Monthly Ave, 0.000642 Daily Max	ug/L	1	Yearly	Permit Requirement		
03A027	TA3-2327	2017	Sept	PCBs, Total				0.0000065	0.0000065	lbs/day	0.00064 Monthly Ave, 0.000642 Daily Max	ug/L	0	Yearly	Discharged to Outfall 001		
03A027	TA3-2327	2018	Sept	PCBs, Total				0.0000065	0.0000065	ug/L	0.00064 Monthly Ave, 0.000642 Daily Max	ug/L	0	Yearly	Discharged to Outfall 001		
				<b>PCBs, Total</b>	Daily Average			<b>0.0013</b>					<b>2</b>				
				<b>PCBs, Total</b>	Maximum 30 Day Average			<b>0.0024</b>					<b>2</b>				
				<b>PCBs, Total</b>	Maximum				<b>0.0024</b>				<b>2</b>				
03A027	TA3-2327	2015	Sept	Adjusted Gross Alpha				1.01	1.01	pCi/L	NA	NA	0	Term	Not Required		
03A027	TA3-2327	2016	Sept	Adjusted Gross Alpha				1.01	1.01	pCi/L	NA	NA	1	Term	Permit Requirement		
03A027	TA3-2327	2017	Sept	Adjusted Gross Alpha				2.79	2.79	pCi/L	NA	NA	0	Term	Discharged to Outfall 001		
03A027	TA3-2327	2018	Aug	Adjusted Gross Alpha				2.79	2.79	pCi/L	NA	NA	1	Operational Sample	2019 Permit Application		
03A027	TA3-2327	2018	Sept	Adjusted Gross Alpha				1.90	1.90	pCi/L	NA	NA	0	Term	Discharged to Outfall 001		
				<b>Adjusted Gross Alpha</b>	Daily Average			<b>1.90</b>					<b>2</b>				
				<b>Adjusted Gross Alpha</b>	Maximum 30 Day Average			<b>2.79</b>					<b>2</b>				
				<b>Adjusted Gross Alpha</b>	Maximum				<b>2.79</b>				<b>2</b>				



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## 1 PRODUCT AND COMPANY IDENTIFICATION

**Product Identifier:** C-358A  
**SDS Number:** 3120  
**Revision Date:** 12/14/2018  
**Version:** 1  
**Product Use:** Cooling Water Treatment  
**Supplier Details:** U.S. Water Services  
 12270 43rd St. NE  
 St. Michael, MN 55376  
**Contact:** Non-emergency #: 866-663-7632  
**Email:** SDS@uswaterservices.com  
**Web:** www.uswaterservices.com

**EMERGENCY RESPONSE: (ChemTel)**  
**US & Canada: 800-255-3924**  
**International: +01-813-248-0585**

## 2 HAZARDS IDENTIFICATION

### Classification of the Substance or Mixture

#### GHS Classification in Accordance with 29 CFR 1910 (OSHA HCS):

Physical, Corrosive to Metals, 1  
 Health, Acute toxicity, 4 Oral  
 Health, Skin corrosion/irritation, 1  
 Health, Acute toxicity, 4 Inhalation

### GHS Label Elements, Including Precautionary Statements

**GHS Signal Word:** **DANGER**

**GHS Hazard Pictograms:**



### GHS Hazard Statements:

H290 - May be corrosive to metals  
 H302 - Harmful if swallowed  
 H314 - Causes severe skin burns and eye damage  
 H332 - Harmful if inhaled

### GHS Precautionary Statements:

P260 - Do not breathe dust/fume/gas/mist/vapours/spray.  
 P264 - Wash ... thoroughly after handling.  
 P280 - Wear protective gloves/protective clothing/eye protection/face protection.  
 P301 + P330 + P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.  
 P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
 P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses,



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present and easy to do. Continue rinsing.  
P406 - Store in a corrosion resistant container with a resistant inner liner.

## Hazards not Otherwise Classified (HNOC) or not Covered by GHS

PPE recommendation is advisory only and based on typical use conditions. An industrial hygienist or safety officer familiar with the specific situation of anticipated use must determine actual PPE required when using this product (29 CFR 1910.132)

### 3 COMPOSITION/INFORMATION OF INGREDIENTS

Chemical Ingredients		
CAS#	%	Chemical Name
1310-73-2	10-15%	Sodium hydroxide

### 4 FIRST AID MEASURES

**Inhalation:** Remove from contamination. If person has stopped breathing administer artificial respiration. Seek medical attention.

**Skin Contact:** Wash off with soap and plenty of water. Remove contaminated garments and wash or destroy. Seek medical attention if irritation develops. Consult a physician if irritation develops.

**Eye Contact:** Flush eyes with plenty of running water for several minutes. Seek medical attention.

**Ingestion:** If conscious, give plenty of water. If discomfort or other symptoms develop, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

**Most important symptoms & effects (acute & delayed):** Small burns may result from exposure

**Indication of need for immediate medical attention:** No data available

**Special treatment needs:** No data available

### 5 FIRE FIGHTING MEASURES

**Flash Point:** Does not Flash

**Autoignition Temp:** No data available

**LEL:** No data available

**UEL:** No data available

#### Extinguishing Media:

**Suitable:** Use extinguishing media suitable for surrounding fire.

**Unsuitable:** No information available

**Hazardous combustion products:** Hazardous decomposition products formed under fire conditions- Carbon oxides, and other hazardous compounds

**Unusual Fire or Explosion Hazards:** None known

**Special protective equipment/precautions:** Wear self-contained breathing apparatus



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## 6 ACCIDENTAL RELEASE MEASURES

**Personal Precautions, Protective equipment, emergency procedures:** Avoid contact with the material. See section 8 of SDS for PPE recommendations

**Environmental Precautions:** Keep runoff from entering drains or waterways

**Spill/Leak procedures:** Contain spill or leak. Dike area if necessary to prevent spill from spreading or entering sewers and waterways. Recover as much as possible then absorb remainder with inert material. Place into closed container for disposal.

**Regulatory Requirements:** Dispose of recovered material in accordance with all applicable state and federal regulations.

## 7 HANDLING AND STORAGE

**Handling Precautions:** Avoid contact with eyes, skin, or clothing. Do not taste or swallow. Do not inhale vapor or mist. Use with adequate ventilation. For industrial use only!

**Storage Requirements:** Keep away from children. Store in closed containers away from temperature extremes and incompatible materials. Store in properly labeled containers in accordance with all local, state and federal guidelines.

## 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

**Engineering Controls:** Provide local exhaust ventilation as needed to control misting.

**Personal Protective Equipment:** HMIS PP, C | Safety Glasses, Gloves, Apron

Respiratory protection: Not required under normal use conditions. If needed use MSHA/NIOSH approved respirator. Seek professional advice prior to respirator selection and use. Follow all requirements of OSHA respirator regulations (29 CFR 1910.134) Safety Stations: Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area. General Hygiene: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, using the toilet, or applying cosmetics. PPE recommendation is advisory only and based on typical use conditions. An industrial hygienist or safety officer familiar with the specific situation of anticipated use must determine actual PPE required when using this product (29 CFR 1910.132)

### Exposure Limits:

Sodium hydroxide (CAS: 1310-73-2)

PEL (Inhalation): 2 mg/m<sup>3</sup> Ceiling (OSHA)

TLV (Inhalation): 2 mg/m<sup>3</sup> Ceiling (ACGIH)

## 9 PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance:</b>	Yellow to Amber	<b>Odor:</b>	Mild
<b>Physical State:</b>	Liquid	<b>Solubility:</b>	Complete
<b>Odor Threshold:</b>	No data available	<b>Freezing/Melting Pt.:</b>	No data available
<b>Spec Grav./Density:</b>	1.12	<b>Flash Point:</b>	Does not flash
<b>Viscosity:</b>	No data available	<b>Auto-Ignition Temp:</b>	No data available
<b>Boiling Point:</b>	>212°F	<b>UFL/LFL:</b>	No data available
<b>Partition Coefficient:</b>	No data available		
<b>Vapor Pressure:</b>	No data available		





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**pH:** >12  
**Evap. Rate:** <1 (butyl acetate = 1)  
**Decomp Temp:** No data available

## 10 STABILITY AND REACTIVITY

**Chemical Stability:** Product is stable under normal storage and use conditions.  
**Conditions to Avoid:** Avoid temperature extremes. Protect from freezing.

**Materials to Avoid:** Acids, oxidizing materials, halogen compounds, copper, zinc and galvanized metals.  
**Hazardous Decomposition:** Carbon monoxide, carbon dioxide, ammonia, and oxides of nitrogen  
**Hazardous Polymerization:** Will not occur.

## 11 TOXICOLOGICAL INFORMATION

**Acute Toxicity:** No data available  
**Skin Corrosion/Irritation:** No data available  
**Serious eye damage/Irritation:** No data available  
**Respiratory or skin sensitization:** No data available  
**Specific target organ toxicity (single exposure):** No data available  
**Specific target organ toxicity (repeated exposure):** No data available  
**Aspiration hazard:** No data available  
**Carcinogenicity:** No carcinogenic effects are known for the components of this product  
**Germ Cell Mutagenicity:** No mutagenic effects are known for the components of this product  
**Teratogenicity:** No teratogenic effects are known for the components of this product

## 12 ECOLOGICAL INFORMATION

**Aquatic Toxicity:** No data available  
**Elimination (persistence & degradability):** No data available  
**Bioaccumulative potential:** No data available  
**Mobility in soil:** No data available  
**Other adverse effects:** No data available

## 13 DISPOSAL CONSIDERATIONS

Dispose of in accordance with local regulations.

This material should be fully characterized for toxicity and possible reactivity prior to disposal (40 CFR 261). Use which results in chemical or physical change or contamination may subject it to regulation as a hazardous waste. Along with properly characterizing all waste materials, consult state and local regulations regarding the proper disposal of this material.

Container contents should be completely used and containers should be emptied prior to discard. Container rinsate could be considered a RCRA hazardous waste and must be disposed of with care and in full compliance with federal, state and local regulations. Larger empty containers, such as drums, should be returned to the distributor or to a drum reconditioner. To assure proper disposal of smaller empty containers, consult with state and local regulations and disposal authorities.



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## 14 TRANSPORT INFORMATION

UN1719, Caustic alkali liquids, n.o.s., 8, PGI, (Sodium hydroxide)

Certain shipping modes or package sizes may have exceptions from the transport regulations. The classification provided may not reflect those exceptions and may not apply to all shipping modes or package sizes.

DOT Transportation data (49 CFR 172.101)

See section 15 for information on Reportable Quantity chemicals (RQ)

## 15 REGULATORY INFORMATION

Component (CAS#) [%] - CODES

RQ(1000LBS), Sodium hydroxide (1310-73-2) [10-15%] CERCLA, CSWHS, MASS, OSHAWAC, PA, TSCA, TXAIR

### Regulatory CODE Descriptions

RQ = Reportable Quantity  
 CERCLA = Superfund clean up substance  
 CSWHS = Clean Water Act Hazardous substances  
 MASS = MA Massachusetts Hazardous Substances List  
 OSHAWAC = OSHA Workplace Air Contaminants  
 PA = PA Right-To-Know List of Hazardous Substances  
 TSCA = Toxic Substances Control Act  
 TXAIR = TX Air Contaminants with Health Effects Screening Level

TSCA: All components of this product are listed (or are not required to be listed) in the TSCA inventory

EPA / CERCLA / SARA TITLE III:

Toxic Chemical List (SARA 313): This product does not contain any chemicals subject to routine annual toxic chemical release reporting.

Extremely Hazardous Substance (SARA 302/304): This product does not contain any extremely hazardous substances subject to emergency planning requirements.




SARA 312: Acute

RCRA: D002

## 16 OTHER INFORMATION

HMIS III: Health = 2, Fire = 0, Physical Hazard = 0

HMIS PPE: C - Safety Glasses, Gloves, Apron

HMIS	PPE
HEALTH <input type="checkbox"/> 2	
FLAMMABILITY <input type="checkbox"/> 0	
PHYSICAL HAZARD <input type="checkbox"/> 0	
PERSONAL PROTECTION <input type="checkbox"/> C	



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U.S. Water Services

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**Author:** U.S. Water Services

**Revision Notes:** Updated to GHS format

**Disclaimer:**

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose(s). The above information is not claiming characteristics of the product in term of legal claims of performance / guarantee. This information only describes safety measures and no liability may arise from the use or application of the product described herein. This information is given in good faith and based on our current knowledge of the product.

Revision Date: 12/14/2018

R-630





# SAFETY DATA SHEET

U.S. Water Services

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**R-630**

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## 1 PRODUCT AND COMPANY IDENTIFICATION

**Product Identifier:** R-630  
**SDS Number:** W0006  
**Revision Date:** 8/16/2017  
**Version:** 1  
**Product Use:** Boiler Water Treatment  
**Supplier Details:** U.S. Water Services  
 12270 43rd St. NE  
 St. Michael, MN 55376

**Contact:** Non-emergency #: 866-663-7632  
**Email:** SDS@uswaterservices.com  
**Web:** www.uswaterservices.com

**EMERGENCY RESPONSE: (ChemTel)**  
**US & Canada: 800-255-3924**  
**International: +01-813-248-0585**

## 2 HAZARDS IDENTIFICATION

### Classification of the Substance or Mixture

**GHS Classification in Accordance with 29 CFR 1910 (OSHA HCS):**  
 Health, Skin corrosion/irritation, 2

### GHS Label Elements, Including Precautionary Statements

**GHS Signal Word:** **WARNING**

**GHS Hazard Pictograms:**



### GHS Hazard Statements:

H315 - Causes skin irritation

### GHS Precautionary Statements:

P264 - Wash thoroughly after handling.  
 P280 - Wear protective gloves/protective clothing/eye protection/face protection.  
 P302 + P352 - IF ON SKIN: Wash with plenty of water  
 P332 + P313 - If skin irritation occurs: Get medical advice/attention.  
 P361 + P364 - Take off immediately all contaminated clothing and wash it before reuse.  
 P301 + P312 - IF SWALLOWED: Call a POISON CENTER/ doctor/...if you feel unwell.

**Hazards not Otherwise Classified (HNOC) or not Covered by GHS**



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PPE recommendation is advisory only and based on typical use conditions. An industrial hygienist or safety officer familiar with the specific situation of anticipated use must determine actual PPE required when using this product (29 CFR 1910.132)

### 3 COMPOSITION/INFORMATION OF INGREDIENTS

**Ingredients:**

Cas#	%	Chemical Name
7681-57-4	15-25%	Sodium metabisulfite

### 4 FIRST AID MEASURES

**Inhalation:** Remove from contamination. If person has stopped breathing administer artificial respiration. Seek medical attention.

**Skin Contact:** Wash off with soap and plenty of water. Remove contaminated garments and wash or destroy. Seek medical attention if irritation develops. Consult a physician if irritation develops.

**Eye Contact:** Flush eyes with plenty of running water for 15 minutes. Seek medical attention.

**Ingestion:** If conscious, give plenty of water. If discomfort or other symptoms develop, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

**Most important symptoms & effects (acute & delayed):** No data available

**Indication of need for immediate medical attention:** No data available

**Special treatment needs:** No data available

### 5 FIRE FIGHTING MEASURES

**Flash Point:** Does not Flash

**Autoignition Temp:** No data available

**LEL:** No data available

**UEL:** No data available

**Extinguishing Media:**

**Suitable:** Use extinguishing media suitable for surrounding fire.

**Unsuitable:** No information available

**Hazardous combustion products:** Hazardous decomposition products formed under fire conditions- Carbon oxides, and other hazardous compounds

**Unusual Fire or Explosion Hazards:** None known

**Special protective equipment/precautions:** Wear self-contained breathing apparatus

### 6 ACCIDENTAL RELEASE MEASURES

**Personal Precautions, Protective equipment, emergency procedures:** Avoid contact with the material. See section 8 of SDS for PPE recommendations

**Environmental Precautions:** Keep runoff from entering drains or waterways



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**Spill/Leak procedures:** Contain spill or leak. Dike area if necessary to prevent spill from spreading or entering sewers and waterways. Recover as much as possible then absorb remainder with inert material. Place into closed container for disposal.

**Regulatory Requirements:** Dispose of recovered material in accordance with all applicable state and federal regulations.

## 7 HANDLING AND STORAGE

**Handling Precautions:** Avoid contact with eyes, skin, or clothing. Do not taste or swallow. Do not inhale vapor or mist. Use with adequate ventilation. For industrial use only!

**Storage Requirements:** Keep away from children. Store in closed containers away from temperature extremes and incompatible materials. Store in properly labeled containers in accordance with all local, state and federal guidelines. Do not store in zinc, aluminum, brass, or tin.

## 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

**Engineering Controls:** Provide local exhaust ventilation as needed to control misting.

**Personal Protective Equipment:** HMIS PP, C | Safety Glasses, Gloves, Apron

**Respiratory protection:** If needed use MSHA/NIOSH approved respirator. Seek professional advice prior to respirator selection and use. Follow all requirements of OSHA respirator regulations (29 CFR 1910.134)

**Safety Stations:** Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

**General Hygiene:** Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, using the toilet, or applying cosmetics.

PPE recommendation is advisory only and based on typical use conditions. An industrial hygienist or safety officer familiar with the specific situation of anticipated use must determine actual PPE required when using this product (29 CFR 1910.132)

**Exposure Limits:**

OSHA (TWA)/PEL: Not Established

ACGIH (TWA/TLV): Not Established

## 9 PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance:</b>	Clear, Pink	<b>Odor:</b>	No appreciable odor
<b>Physical State:</b>	Liquid	<b>Solubility:</b>	Complete
<b>Odor Threshold:</b>	No data available	<b>Freezing/Melting Pt.:</b>	No data available
<b>Spec Grav./Density:</b>	10.43 Lb/Gal	<b>Flash Point:</b>	Does not flash
<b>Viscosity:</b>	No data available	<b>Auto-ignition Temp:</b>	No data available
<b>Boiling Point:</b>	>212°F	<b>UFL/LFL:</b>	No data available
<b>Partition Coefficient:</b>	No data available		
<b>Vapor Pressure:</b>	No data available		
<b>pH:</b>	~6.5		
<b>Evap. Rate:</b>	<1 (butyl acetate = 1)		
<b>Decomp Temp:</b>	No data available		



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## 10 STABILITY AND REACTIVITY

**Chemical Stability:** Product is stable under normal storage and use conditions.

**Conditions to Avoid:** Avoid temperature extremes. Protect from freezing

**Materials to Avoid:** Strong Oxidizing Agents may cause exothermic reaction

**Hazardous Decomposition:** Thermal decomposition may produce carbon oxides and other toxic compounds.

**Hazardous Polymerization:** Will not occur.

## 11 TOXICOLOGICAL INFORMATION

**Acute Toxicity:** No data available  
**Skin Corrosion/Irritation:** No data available  
**Serious eye damage/irritation:** No data available  
**Respiratory or skin sensitization:** No data available  
**Specific target organ toxicity (single exposure):** No data available  
**Specific target organ toxicity (repeated exposure):** No data available  
**Aspiration hazard:** No data available  
**Carcinogenicity:** No carcinogenic effects are known for the components of this product  
**Germ Cell Mutagenicity:** No mutagenic effects are known for the components of this product  
**Teratogenicity:** No teratogenic effects are known for the components of this product

## 12 ECOLOGICAL INFORMATION

**Aquatic Toxicity:** No data available  
**Elimination (persistence & degradability):** No data available  
**Bioaccumulative potential:** No data available  
**Mobility in soil:** No data available  
**Other adverse effects:** No data available

## 13 DISPOSAL CONSIDERATIONS

Dispose of in accordance with local regulations.

This material should be fully characterized for toxicity and possible reactivity prior to disposal (40 CFR 261). Use which results in chemical or physical change or contamination may subject it to regulation as a hazardous waste. Along with properly characterizing all waste materials, consult state and local regulations regarding the proper disposal of this material.

Container contents should be completely used and containers should be emptied prior to discard. Container rinsate could be considered a RCRA hazardous waste and must be disposed of with care and in full compliance with federal, state and local regulations. Larger empty containers, such as drums, should be returned to the distributor or to a drum reconditioner. To assure proper disposal of smaller empty containers, consult with state and local regulations and disposal authorities.

## 14 TRANSPORT INFORMATION





# SAFETY DATA SHEET

U.S. Water Services

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**R-630**

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**Proper Shipping Name:** Non-Regulated

DOT Transportation data (49 CFR 172.101)

<b>15</b>	<b>REGULATORY INFORMATION</b>
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**Component (CAS#) [%] - CODES**

Sodium metabisulfite (7681-57-4) [15-25%] MASS, OSHAWAC, PA, TSCA, TXAIR

**Regulatory CODE Descriptions**

**MASS = MA** Massachusetts Hazardous Substances List

**OSHAWAC = OSHA** Workplace Air Contaminants

**PA = PA** Right-To-Know List of Hazardous Substances

**TSCA = Toxic Substances Control Act**

**TXAIR = TX** Air Contaminants with Health Effects Screening Level

**TSCA:** All components of this product are listed (or are not required to be listed) in the TSCA inventory

**EPA / CERCLA / SARA TITLE III:**

**Toxic Chemical List (SARA 313):** This product does not contain any chemicals subject to routine annual toxic chemical release reporting.

**Extremely Hazardous Substance (SARA 302/304):** This product does not contain any extremely hazardous substances subject to emergency planning requirements.

**SARA 312:** Acute

**RCRA:** No data available



# SAFETY DATA SHEET

U.S. Water Services

R-630

## 16 OTHER INFORMATION

HMIS III: Health = 2, Fire = 0, Physical Hazard = 0  
HMIS PPE: C - Safety Glasses, Gloves, Apron

HMIS	
HEALTH	2
FLAMMABILITY	0
PHYSICAL HAZARD	0
PERSONAL PROTECTION	C

Author: U.S. Water Services

Revision Notes: Updated to GHS format

**Disclaimer:**

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose(s). The above information is not claiming characteristics of the product in term of legal claims of performance / guarantee. This information only describes safety measures and no liability may arise from the use or application of the product described herein. This information is given in good faith and based on our current knowledge of the product.

# **ATTACHMENT 4**

## **Editorial Corrections to the NPDES-FS-18-004-R1, Outfall 03A199 Fact Sheet**

**EPC-DO: 19-299**

**LA-UR-19-28240**

**Date:**                     **AUG 19 2019**

# **Industrial and Sanitary Outfalls 2019 NPDES Permit Re-Application Outfall 03A199 Fact Sheet**

Utilities and Infrastructure (U&I)  
Laboratory Data Communications Center (LDCC) Cooling Towers





## Revision Log

<u>Revision No.</u>	<u>Date</u>	<u>Page Nos.</u>	<u>Change Description</u>
<u>0</u>	<u>3/18/19</u>	<u>NAP[]</u>	<u>Original</u>
<u>1</u>	<u>7/31/2019</u>	<u>Page 6 of 8, Table 3</u>	<u>Updated the chemical information for C358 and R-630 for the LDCC Cooling Towers. Deleted WEST C-825 because the chemical is no longer in use.</u>
		<u>Page 7 of 8, Table 5</u>	<u>Updated the potential chemicals associated with the LDCC Cooling Towers to match Table 3.</u>
		<u>Attachment C, C-3</u>	<u>Revised the Title of photograph NPDES-03A199-18-005.</u>
		<u>Attachment D, page D3</u>	<u>Revised the summary lines for pH to include "pH"</u>
		<u>Attachment D, page D4</u>	<u>Revised the summary lines for Total Residual Chlorine to include "Total Residual Chlorine"</u>
		<u>Attachment D, page D5</u>	<u>Revised the summary lines for Aluminum to say "Aluminum, Total"</u>
		<u>Attachment D, page D5 and D6</u>	<u>Revised the summary lines for Copper to say "Copper, Dissolved"</u>
		<u>Attachment D, page D6</u>	<u>Revised Gross Alpha to say "Adjusted Gross Alpha"</u>
		<u>Attachment E, page 178</u>	<u>Replaced the MSDS for WEST C-358P Inhibitor with the current SDS.</u>
		<u>Attachment E, page 183</u>	<u>Deleted the MSDS for WEST C-825 because the chemical is no longer used.</u>
		<u>Attachment E, page E-189</u>	<u>Replaced the MSDS for WEST R-650 with the current SDS.</u>
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

The water treatment processes identified in Table 2 utilize chemicals to monitor the water quality in the cooling tower, control corrosion, limit biological growth, and de-chlorinate blowdown prior to discharge. Table 3 provides a list of the chemicals used to treat the water in the cooling towers.

Source	Chemical Name	Reason for Use	Toxic Pollutant and/or Hazardous Substances Table 2C-3 or 2C-4	
LDCC Cooling Towers	Bromicide Tablets	Biocide	Bromo-chloro-5,5-dimethyl hydantoin (chlorine source)	2C-4
	HACH 203832	Sulfuric Acid Solution 19.2N	Sulfuric Acid	2C-4
	HACH 1407028	Free Chlorine Reagent	Sodium Phosphate Dibasic	2C-4
			EDTA	2C-4
	HACH 2076053	Molybdovanadate Reagent	Sulfuric Acid	2C-4
	HACH 2105669	Total Chlorine Reagent	Sodium Phosphate Dibasic	2C-4
	HACH 2263411	Total Chlorine Indicator	Sulfuric Acid	2C-4
	HACH 2263511	Total Chlorine Buffer Solution	Sodium Hydroxide	2C-4
			EDTA	2C-4
	HACH 2297255	Compound for Free and Total Chlorine Analyzers	NA	NA
	HACH 2314011	Free Chlorine Indicator Solution for CL-17 Analyzer	Toluene	2C-4
	HACH 2314111	Free Chlorine Buffer for CL-117 Analyzer	NA	NA
	HACH 2756549	pH Storage Solution	Sodium Phosphate Dibasic	2C-4
	WEST C-358AP	Corrosion Inhibitor & Antiscalant	Sodium Potassium Hydroxide	2C-4
	WEST C-825	pH control (neutralization)	Sodium Bisulfite	2C-4
	WEST R-630	Dechlorination	Sodium Metabisulfite	2C-4
	Bright Dyes FLT Yellow/Green Liquid	Water Line & Drain Tracing Dye	NA	NA
NA			NA	
Bright Dyes FLT Yellow/Green Tablet	Water Line & Drain Tracing Dye	NA	NA	
		NA	NA	

EDTA = Ethylene Diamine Tetraacetic Acid; NA = not applicable; LDCC = Laboratory Data Communications Center

### 2.3 Discharge Rate and Frequency [II.C]

The discharge rates and frequencies for Outfall 03A199 are provided in Table 4.

Source <sup>a</sup>	Frequency		Flow Rates and Volumes				
	Days/Week	Months	Average (MGD)	Maximum (MGD)	Average Volume (GPD)	Maximum Volume (GPD)	Duration (days)
LDCC Cooling Towers	7	12	0.036	0.074	36,024	74,000	365

a. Calculated between October 2017 and September 2018.

GPD = gallons per day; MGD = million gallons per day; LDCC = Laboratory Data Communications Center

### 3.0 PRODUCTION [Section III]

Section III is not applicable to Outfall 03A199.

#### 4.0 IMPROVEMENTS [Section IV]

Section IV is not applicable to Outfall 03A199.

#### 5.0 INTAKE AND EFFLUENT CHARACTERISTICS [Section V]

##### 5.1 Analytical Data [V.A, B, and C]

The analytical results provided for the Outfall 03A199 Permit Reapplication on the Form 2C were provided from the following sources:

- Samples collected on August 15, 2018 and shipped to an independent laboratory for analysis.
- Field samples collected and analyzed on August 15, 2018 for temperature, residual chlorine, and pH.
- Field samples collected and analyzed on January 16, 2019 for sulfite.
- Discharge monitoring report summary for Outfall 03A199 from October 2014 to September 2018 (Attachment D).
- Hardness = 79.1 mg/L (CaCO<sub>3</sub>)

##### 5.2 Potential Pollutants [V.D]

The treatment chemicals associated with the LDCC Cooling Tower water treatment system, the use of potable water that has been conditioned in the water treatment system constitutes the pollutant load of the discharge to Outfall 03A199. Table 5 identifies the Table 2C-3 and 2C-4 pollutants by discharge source. It also identifies those pollutants (if any) that were detected in the analytical results from the samples collected for the 2019 Permit Renewal Application.

Source	Pollutant		Analytical Data Results from Outfall 03A199 <sup>a</sup>
LDCC Cooling Towers	EDTA	2C-4	pH = 7.3 – 8.6 S.U.
	potassium hydroxide	2C-4	pH = 7.3 – 8.6 S.U.
	sodium bisulfite	2C-4	Sulfite = 9.1 mg/L
	sodium hydroxide	2C-4	pH = 7.3 – 8.6 S.U.
	sodium phosphate dibasic	2C-4	Total phosphorus = 1.58
	sulfuric acid	2C-4	pH = 7.3 – 8.6 S.U.
	toluene	2C-4	Not Detected (VOC)
	chlorine	2C-4	Residual chlorine = 0
Potable Makeup Water	chlorine	2C-4	Total residual chlorine = 0

a. Results are from the representative sample collected at Outfall 03A199 on August 15, 2018.

EDTA = Ethylene Diamine Tetraacetic Acid; LDCC = Laboratory Data Communications Center; S.U. = standard units; VOC = volatile organic compound

The safety data sheets associated with the chemicals used to treat water at the LDCC are provided in Attachment E.

#### 6.0 POTENTIAL DISCHARGES NOT COVERED BY ANALYSIS [Section VI]

Section VI is not applicable to Outfall 03A199.

#### 7.0 BIOLOGICAL TOXICITY TESTING DATA [Section VII]

Section VII is not applicable to Outfall 03A199.

#### 8.0 CONTRACT ANALYSIS INFORMATION [Section VIII]

Samples from the LDCC blowdown were collected on August 15, 2018 for the Form 2C constituents required by the permit application forms. These samples were submitted to independent laboratories as summarized in Table 6.



**Photograph - NPDES-03A199-18-005**  
**LDCC Corrosion Inhibitor and pH Adjustment Chemical Feed Tanks**



**Photograph - NPDES-03A199-18-006**  
**LDCC Neutralization Tank**



OUTFALL No.	TA - Bldg.	Year	Monitoring Period	Parameter	Quantity or Loading			Quality or Concentration					Permit Limit	Units	Number of Samples	Frequency	Notes
					Average	Maximum	Units	Minimum	Average	Maximum	Units						
03A199	TA3-1837	2017	Apr	pH				7.7	****	7.8	S.U.	4.0	Weekly	6.6 - 8.8	S.U.	4.0	Required by Permit
03A199	TA3-1837	2017	May	pH				7.7	****	7.9	S.U.	5.0	Weekly	6.6 - 8.8	S.U.	5.0	Required by Permit
03A199	TA3-1837	2017	Jun	pH				7.8	****	7.8	S.U.	4.0	Weekly	6.6 - 8.8	S.U.	4.0	Required by Permit
03A199	TA3-1837	2017	Jul	pH				7.7	****	7.9	S.U.	4.0	Weekly	6.6 - 8.8	S.U.	4.0	Required by Permit
03A199	TA3-1837	2017	Aug	pH				7.9	****	8.0	S.U.	5.0	Weekly	6.6 - 8.8	S.U.	5.0	Required by Permit
03A199	TA3-1837	2017	Sept	pH				7.9	****	8.0	S.U.	4.0	Weekly	6.6 - 8.8	S.U.	4.0	Required by Permit
03A199	TA3-1837	2017	Oct	pH				7.7	****	8.4	S.U.	4.0	Weekly	6.6 - 8.8	S.U.	4.0	Required by Permit
03A199	TA3-1837	2017	Nov	pH				7.3	****	7.9	S.U.	5.0	Weekly	6.6 - 8.8	S.U.	5.0	Required by Permit
03A199	TA3-1837	2017	Dec	pH				7.5	****	7.8	S.U.	4.0	Weekly	6.6 - 8.8	S.U.	4.0	Required by Permit
03A199	TA3-1837	2018	Jan	pH				7.6	****	7.9	S.U.	5.0	Weekly	6.6 - 8.8	S.U.	5.0	Required by Permit
03A199	TA3-1837	2018	Feb	pH				7.7	****	7.9	S.U.	4.0	Weekly	6.6 - 8.8	S.U.	4.0	Required by Permit
03A199	TA3-1837	2018	Mar	pH				7.6	****	7.9	S.U.	4.0	Weekly	6.6 - 8.8	S.U.	4.0	Required by Permit
03A199	TA3-1837	2018	Apr	pH				7.5	****	8.3	S.U.	4.0	Weekly	6.6 - 8.8	S.U.	4.0	Required by Permit
03A199	TA3-1837	2018	May	pH				7.3	****	7.7	S.U.	5.0	Weekly	6.6 - 8.8	S.U.	5.0	Required by Permit
03A199	TA3-1837	2018	Jun	pH				7.3	****	7.7	S.U.	4.0	Weekly	6.6 - 8.8	S.U.	4.0	Required by Permit
03A199	TA3-1837	2018	Jul	pH				7.7	****	7.9	S.U.	4.0	Weekly	6.6 - 8.8	S.U.	4.0	Required by Permit
03A199	TA3-1837	2018	Aug	pH				7.9	****	8.1	S.U.	5.0	Weekly	6.6 - 8.8	S.U.	5.0	Required by Permit
03A199	TA3-1837	2018	Sept	pH				7.7	****	8.1	S.U.	4.0	Weekly	6.6 - 8.8	S.U.	4.0	Required by Permit
					pH			7.3				209					
					pH			8.45						209			
					pH			Maximum 30 Day Average						209			
					pH			Maximum			8.6						
03A199	TA3-1837	2014	Oct	Total Residual Chlorine				****	****	0	mg/L	5.0	Weekly	0.011	mg/L	5.0	Required by Permit
03A199	TA3-1837	2014	Nov	Total Residual Chlorine				****	****	0	mg/L	4.0	Weekly	0.011	mg/L	4.0	Required by Permit
03A199	TA3-1837	2014	Dec	Total Residual Chlorine				****	****	0	mg/L	5.0	Weekly	0.011	mg/L	5.0	Required by Permit
03A199	TA3-1837	2015	Jan	Total Residual Chlorine				****	****	0	mg/L	4.0	Weekly	0.011	mg/L	4.0	Required by Permit
03A199	TA3-1837	2015	Feb	Total Residual Chlorine				****	****	0	mg/L	4.0	Weekly	0.011	mg/L	4.0	Required by Permit
03A199	TA3-1837	2015	Mar	Total Residual Chlorine				****	****	0	mg/L	4.0	Weekly	0.011	mg/L	4.0	Required by Permit
03A199	TA3-1837	2015	Apr	Total Residual Chlorine				****	****	0	mg/L	5.0	Weekly	0.011	mg/L	5.0	Required by Permit
03A199	TA3-1837	2015	May	Total Residual Chlorine				****	****	0	mg/L	4.0	Weekly	0.011	mg/L	4.0	Required by Permit
03A199	TA3-1837	2015	Jun	Total Residual Chlorine				****	****	0	mg/L	4.0	Weekly	0.011	mg/L	4.0	Required by Permit
03A199	TA3-1837	2015	Jul	Total Residual Chlorine				****	****	0	mg/L	5.0	Weekly	0.011	mg/L	5.0	Required by Permit
03A199	TA3-1837	2015	Aug	Total Residual Chlorine				****	****	0	mg/L	4.0	Weekly	0.011	mg/L	4.0	Required by Permit
03A199	TA3-1837	2015	Sept	Total Residual Chlorine				****	****	0	mg/L	5.0	Weekly	0.011	mg/L	5.0	Required by Permit
03A199	TA3-1837	2015	Oct	Total Residual Chlorine				****	****	0	mg/L	4.0	Weekly	0.011	mg/L	4.0	Required by Permit
03A199	TA3-1837	2015	Nov	Total Residual Chlorine				****	****	0	mg/L	4.0	Weekly	0.011	mg/L	4.0	Required by Permit
03A199	TA3-1837	2015	Dec	Total Residual Chlorine				****	****	0	mg/L	5.0	Weekly	0.011	mg/L	5.0	Required by Permit
03A199	TA3-1837	2016	Jan	Total Residual Chlorine				****	****	0	mg/L	4.0	Weekly	0.011	mg/L	4.0	Required by Permit
03A199	TA3-1837	2016	Feb	Total Residual Chlorine				****	****	0	mg/L	4.0	Weekly	0.011	mg/L	4.0	Required by Permit
03A199	TA3-1837	2016	Mar	Total Residual Chlorine				****	****	0	mg/L	5.0	Weekly	0.011	mg/L	5.0	Required by Permit
03A199	TA3-1837	2016	Apr	Total Residual Chlorine				****	****	0	mg/L	4.0	Weekly	0.011	mg/L	4.0	Required by Permit
03A199	TA3-1837	2016	May	Total Residual Chlorine				****	****	0	mg/L	5.0	Weekly	0.011	mg/L	5.0	Required by Permit

OUTFALL No.	TA - Bldg.	Year	Monitoring Period	Parameter	Quantity or Loading			Quality or Concentration							Notes	
					Average	Maximum	Units	Minimum	Average	Maximum	Units	Permit Limit	Units	Number of Samples		Frequency
03A199	TA3-1837	2016	Jun	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Required by Permit
03A199	TA3-1837	2016	Jul	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Required by Permit
03A199	TA3-1837	2016	Aug	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	5.0	Weekly	Required by Permit
03A199	TA3-1837	2016	Sept	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Required by Permit
03A199	TA3-1837	2016	Oct	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Required by Permit
03A199	TA3-1837	2016	Nov	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	5.0	Weekly	Required by Permit
03A199	TA3-1837	2016	Dec	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Required by Permit
03A199	TA3-1837	2017	Jan	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Required by Permit
03A199	TA3-1837	2017	Feb	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Required by Permit
03A199	TA3-1837	2017	Mar	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	5.0	Weekly	Required by Permit
03A199	TA3-1837	2017	Apr	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Required by Permit
03A199	TA3-1837	2017	May	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	5.0	Weekly	Required by Permit
03A199	TA3-1837	2017	Jun	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Required by Permit
03A199	TA3-1837	2017	Jul	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Required by Permit
03A199	TA3-1837	2017	Aug	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	5.0	Weekly	Required by Permit
03A199	TA3-1837	2017	Sept	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Required by Permit
03A199	TA3-1837	2017	Oct	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Required by Permit
03A199	TA3-1837	2017	Nov	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	5.0	Weekly	Required by Permit
03A199	TA3-1837	2017	Dec	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Required by Permit
03A199	TA3-1837	2018	Jan	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Required by Permit
03A199	TA3-1837	2018	Feb	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	5.0	Weekly	Required by Permit
03A199	TA3-1837	2018	Mar	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Required by Permit
03A199	TA3-1837	2018	Apr	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Required by Permit
03A199	TA3-1837	2018	May	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	5.0	Weekly	Required by Permit
03A199	TA3-1837	2018	Jun	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Required by Permit
03A199	TA3-1837	2018	Jul	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Required by Permit
03A199	TA3-1837	2018	Aug	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	5.0	Weekly	Required by Permit
03A199	TA3-1837	2018	Sept	Total Residual Chlorine				****	****	0	mg/L	0.011	mg/L	4.0	Weekly	Required by Permit
					Daily Average			0.02			mg/L			209		
					Maximum 30 Day Average			0.98			mg/L			209		
					Daily Maximum			0.98			mg/L			209		
03A199	TA3-1837	2014	Dec	Total Suspended Solids				****	****	1	mg/L	30 - 100	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2015	Mar	Total Suspended Solids				****	****	1	mg/L	30 - 100	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2015	Jun	Total Suspended Solids				****	****	1	mg/L	30 - 100	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2015	Sept	Total Suspended Solids				****	****	3.1	mg/L	30 - 100	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2015	Dec	Total Suspended Solids				****	****	<0.57	mg/L	30 - 100	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2016	Mar	Total Suspended Solids				****	****	1.17	mg/L	30 - 100	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2016	Jun	Total Suspended Solids				****	****	1.1	mg/L	30 - 100	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2016	Sept	Total Suspended Solids				****	****	<5.7	mg/L	30 - 100	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2016	Dec	Total Suspended Solids				****	****	1.22	mg/L	30 - 100	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2017	Mar	Total Suspended Solids				****	****	4.7	mg/L	30 - 100	mg/L	1	Quarterly	Required by Permit

OUTFALL No.	TA - Bldg.	Year	Monitoring Period	Parameter	Quantity or Loading			Quality or Concentration							Notes	
					Average	Maximum	Units	Minimum	Average	Maximum	Units	Permit Limit	Units	Number of Samples		Frequency
03A199	TA3-1837	2017	Jun	Total Suspended Solids				****	0.7	0.7	mg/L	30 - 100	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2017	Sept	Total Suspended Solids				****	1.5	1.5	mg/L	30 - 100	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2017	Dec	Total Suspended Solids				****	0.957	0.957	mg/L	30 - 100	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2018	Mar	Total Suspended Solids				****	1	1	mg/L	30 - 100	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2018	Jun	Total Suspended Solids				****	1	1	mg/L	30 - 100	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2018	Sept	Total Suspended Solids				****	1.74	1.8	mg/L	30 - 100	mg/L	2	Quarterly	Required by Permit
				<b>Total Suspended Solids</b>					<b>1.5</b>		<b>mg/L</b>			<b>17</b>		
				<b>Total Suspended Solids</b>					<b>4.7</b>		<b>mg/L</b>			<b>17</b>		
				<b>Total Suspended Solids</b>					<b>4.7</b>		<b>mg/L</b>			<b>17</b>		
03A199	TA3-1837	2014	Dec	Phosphorus, Total				****	1.39	1.39	mg/L	20 - 40	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2015	Mar	Phosphorus, Total				****	1.58	1.58	mg/L	20 - 40	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2015	Jun	Phosphorus, Total				****	1.46	1.46	mg/L	20 - 40	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2015	Sept	Phosphorus, Total				****	1.29	1.29	mg/L	20 - 40	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2015	Dec	Phosphorus, Total				****	1.41	1.41	mg/L	20 - 40	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2016	Mar	Phosphorus, Total				****	0.428	0.428	mg/L	20 - 40	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2016	Jun	Phosphorus, Total				****	0.256	0.256	mg/L	20 - 40	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2016	Sept	Phosphorus, Total				****	0.455	0.455	mg/L	20 - 40	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2016	Dec	Phosphorus, Total				****	0.583	0.583	mg/L	20 - 40	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2017	Mar	Phosphorus, Total				****	0.634	0.634	mg/L	20 - 40	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2017	Jun	Phosphorus, Total				****	0.348	0.348	mg/L	20 - 40	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2017	Sept	Phosphorus, Total				****	0.409	0.409	mg/L	20 - 40	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2017	Dec	Phosphorus, Total				****	0.339	0.339	mg/L	20 - 40	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2018	Mar	Phosphorus, Total				****	0.338	0.338	mg/L	20 - 40	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2018	Jun	Phosphorus, Total				****	0.369	0.369	mg/L	20 - 40	mg/L	1	Quarterly	Required by Permit
03A199	TA3-1837	2018	Sept	Phosphorus, Total				****	0.293	0.319	mg/L	20 - 40	mg/L	2	Quarterly	Required by Permit
				<b>Phosphorus, Total</b>					<b>0.7</b>		<b>mg/L</b>			<b>17</b>		
				<b>Phosphorus, Total</b>					<b>1.58</b>		<b>mg/L</b>			<b>17</b>		
				<b>Phosphorus, Total</b>					<b>1.58</b>		<b>mg/L</b>			<b>17</b>		
03A199	TA3-1837	2015	Sept	Aluminum, Total				****	<0.015	<0.015	mg/L	0.9889	mg/L	1	Yearly	Required by Permit
03A199	TA3-1837	2016	Sept	Aluminum, Total				****	<0.015	<0.015	mg/L	0.9889	mg/L	1	Yearly	Required by Permit
03A199	TA3-1837	2017	Sept	Aluminum, Total				****	<0.0193	<0.0193	mg/L	0.9889	mg/L	1	Yearly	Required by Permit
03A199	TA3-1837	2018	Sept	Aluminum, Total				****	<0.0193	<0.0193	mg/L	0.9889	mg/L	1	Yearly	Required by Permit
				<b>Aluminum, Total</b>							<b>mg/L</b>			<b>4</b>		
				<b>Aluminum, Total</b>							<b>mg/L</b>			<b>4</b>		
				<b>Aluminum, Total</b>					<b>0.00000</b>		<b>mg/L</b>			<b>4</b>		
03A199	TA3-1837	2015	Sept	Copper, Dissolved				****	0.00219	0.00219	mg/L	0.0073	mg/L	1	Yearly	Required by Permit
03A199	TA3-1837	2016	Sept	Copper, Dissolved				****	0.00273	0.00273	mg/L	0.0073	mg/L	1	Yearly	Required by Permit
03A199	TA3-1837	2017	Sept	Copper, Dissolved				****	0.00303	0.00303	mg/L	0.0073	mg/L	1	Yearly	Required by Permit
03A199	TA3-1837	2018	Sept	Copper, Dissolved				****	0.00064	0.00064	mg/L	0.0073	mg/L	1	Yearly	Required by Permit
				<b>Copper, Dissolved</b>							<b>mg/L</b>			<b>4</b>		
				<b>Copper, Dissolved</b>							<b>mg/L</b>			<b>4</b>		



OUTFALL No.	TA - Bldg.	Year	Monitoring Period	Parameter	Quantity or Loading			Quality or Concentration							Notes		
					Average	Maximum	Units	Minimum	Average	Maximum	Units	Permit Limit	Units	Number of Samples		Frequency	
				<b>Copper, Dissolved</b>			Maximum										
03A199	TA3-1837	2015	Sept	Mercury, Dissolved				****	****	<0.067	mg/L	0.00303		4			
03A199	TA3-1837	2016	Sept	Mercury, Dissolved				****	****	<0.067	ug/L	0.77		1	Yearly		Required by Permit
03A199	TA3-1837	2017	Sept	Mercury, Dissolved				****	****	<0.067	ug/L	0.77		1	Yearly		Required by Permit
03A199	TA3-1837	2018	Sept	Mercury, Dissolved				****	****	<0.067	ug/L	0.77		1	Yearly		Required by Permit
				<b>Mercury, Dissolved</b>			Daily Average				ug/L			4			
				<b>Mercury, Dissolved</b>			Maximum 30 Day Average			0	ug/L			4			
				<b>Mercury, Dissolved</b>			Maximum				ug/L			4			
03A199	TA3-1837	2015	Sept	Mercury, Total				****	****	<0.067	ug/L	0.77		1	Yearly		Required by Permit
03A199	TA3-1837	2016	Sept	Mercury, Total				****	****	<0.067	ug/L	0.77		1	Yearly		Required by Permit
03A199	TA3-1837	2017	Sept	Mercury, Total				****	****	<0.067	ug/L	0.77		1	Yearly		Required by Permit
03A199	TA3-1837	2018	Sept	Mercury, Total				****	****	<0.067	ug/L	0.77		1	Yearly		Required by Permit
				<b>Mercury, Total</b>			Daily Average				ug/L			4			
				<b>Mercury, Total</b>			Maximum 30 Day Average			0	ug/L			4			
				<b>Mercury, Total</b>			Maximum				ug/L			4			
03A199	TA3-1837	2015	Sept	Adjusted Gross Alpha				****	0	0	pCi/L	Required Monitoring	pCi/L	1	Term		Required by Permit
				<b>Adjusted Gross Alpha</b>			Daily Average				pCi/L			1			
				<b>Adjusted Gross Alpha</b>			Maximum 30 Day Average				pCi/L			1			
				<b>Adjusted Gross Alpha</b>			Maximum			0	pCi/L			1			



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## PRODUCT AND COMPANY IDENTIFICATION

**Product Identifier:** C-358A  
**SDS Number:** 3120  
**Revision Date:** 12/14/2018  
**Version:** 1  
**Product Use:** Cooling Water Treatment  
**Supplier Details:** U.S. Water Services  
 12270 43rd St. NE  
 St. Michael, MN 55376  
**Contact:** Non-emergency #: 866-663-7632  
**Email:** SDS@uswaterservices.com  
**Web:** www.uswaterservices.com

**EMERGENCY RESPONSE: (ChemTel)**  
**US & Canada: 800-255-3924**  
**International: +01-813-248-0585**

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## HAZARDS IDENTIFICATION

### Classification of the Substance or Mixture

#### GHS Classification in Accordance with 29 CFR 1910 (OSHA HCS):

Physical, Corrosive to Metals, 1  
 Health, Acute toxicity, 4 Oral  
 Health, Skin corrosion/irritation, 1  
 Health, Acute toxicity, 4 Inhalation

### GHS Label Elements, Including Precautionary Statements

**GHS Signal Word:** **DANGER**

**GHS Hazard Pictograms:**



### GHS Hazard Statements:

H290 - May be corrosive to metals  
 H302 - Harmful if swallowed  
 H314 - Causes severe skin burns and eye damage  
 H332 - Harmful if inhaled

### GHS Precautionary Statements:

P260 - Do not breathe dust/fume/gas/mist/vapours/spray.  
 P264 - Wash ... thoroughly after handling.  
 P280 - Wear protective gloves/protective clothing/eye protection/face protection.  
 P301 + P330 + P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.  
 P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
 P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses,



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present and easy to do. Continue rinsing.  
P406 - Store in a corrosion resistant container with a resistant inner liner.

**Hazards not Otherwise Classified (HNOC) or not Covered by GHS**

PPE recommendation is advisory only and based on typical use conditions. An industrial hygienist or safety officer familiar with the specific situation of anticipated use must determine actual PPE required when using this product (29 CFR 1910.132)

## 3 COMPOSITION/INFORMATION OF INGREDIENTS

Chemical Ingredients		
CAS#	%	Chemical Name
1310-73-2	10-15%	Sodium hydroxide

## 4 FIRST AID MEASURES

**Inhalation:** Remove from contamination. If person has stopped breathing administer artificial respiration. Seek medical attention.

**Skin Contact:** Wash off with soap and plenty of water. Remove contaminated garments and wash or destroy. Seek medical attention if irritation develops. Consult a physician if irritation develops.

**Eye Contact:** Flush eyes with plenty of running water for several minutes. Seek medical attention.

**Ingestion:** If conscious, give plenty of water. If discomfort or other symptoms develop, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

**Most important symptoms & effects (acute & delayed):** Small burns may result from exposure

**Indication of need for immediate medical attention:** No data available

**Special treatment needs:** No data available

## 5 FIRE FIGHTING MEASURES

**Flash Point:** Does not Flash

**Autoignition Temp:** No data available

**LEL:** No data available

**UEL:** No data available

### Extinguishing Media:

**Suitable:** Use extinguishing media suitable for surrounding fire.

**Unsuitable:** No information available

**Hazardous combustion products:** Hazardous decomposition products formed under fire conditions- Carbon oxides, and other hazardous compounds

**Unusual Fire or Explosion Hazards:** None known

**Special protective equipment/precautions:** Wear self-contained breathing apparatus



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## ACCIDENTAL RELEASE MEASURES

**Personal Precautions, Protective equipment, emergency procedures:** Avoid contact with the material. See section 8 of SDS for PPE recommendations

**Environmental Precautions:** Keep runoff from entering drains or waterways

**Spill/Leak procedures:** Contain spill or leak. Dike area if necessary to prevent spill from spreading or entering sewers and waterways. Recover as much as possible then absorb remainder with inert material. Place into closed container for disposal.

**Regulatory Requirements:** Dispose of recovered material in accordance with all applicable state and federal regulations.

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## HANDLING AND STORAGE

**Handling Precautions:** Avoid contact with eyes, skin, or clothing. Do not taste or swallow. Do not inhale vapor or mist. Use with adequate ventilation. For industrial use only!

**Storage Requirements:** Keep away from children. Store in closed containers away from temperature extremes and incompatible materials. Store in properly labeled containers in accordance with all local, state and federal guidelines.

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## EXPOSURE CONTROLS/PERSONAL PROTECTION

**Engineering Controls:** Provide local exhaust ventilation as needed to control misting.

**Personal Protective Equipment:** HMIS PP, C | Safety Glasses, Gloves, Apron

**Respiratory protection:** Not required under normal use conditions. If needed use MSHA/NIOSH approved respirator. Seek professional advice prior to respirator selection and use. Follow all requirements of OSHA respirator regulations (29 CFR 1910.134) **Safety Stations:** Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area. **General Hygiene:** Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, using the toilet, or applying cosmetics. PPE recommendation is advisory only and based on typical use conditions. An industrial hygienist or safety officer familiar with the specific situation of anticipated use must determine actual PPE required when using this product (29 CFR 1910.132)

### Exposure Limits:

**Sodium hydroxide (CAS: 1310-73-2)**

PEL (Inhalation): 2 mg/m<sup>3</sup> Ceiling (OSHA)

TLV (Inhalation): 2 mg/m<sup>3</sup> Ceiling (ACGIH)

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## PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance:</b>	Yellow to Amber	<b>Odor:</b>	Mild
<b>Physical State:</b>	Liquid	<b>Solubility:</b>	Complete
<b>Odor Threshold:</b>	No data available	<b>Freezing/Melting Pt.:</b>	No data available
<b>Spec Grav./Density:</b>	1.12	<b>Flash Point:</b>	Does not flash
<b>Viscosity:</b>	No data available	<b>Auto-ignition Temp:</b>	No data available
<b>Boiling Point:</b>	>212°F	<b>UFL/LFL:</b>	No data available
<b>Partition Coefficient:</b>	No data available		
<b>Vapor Pressure:</b>	No data available		





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**pH:** >12  
**Evap. Rate:** <1 (butyl acetate = 1)  
**Decomp Temp:** No data available

## 10 STABILITY AND REACTIVITY

**Chemical Stability:** Product is stable under normal storage and use conditions.  
**Conditions to Avoid:** Avoid temperature extremes. Protect from freezing  
**Materials to Avoid:** Acids, oxidizing materials, halogen compounds, copper, zinc and galvanized metals.  
**Hazardous Decomposition:** Carbon monoxide, carbon dioxide, ammonia, and oxides of nitrogen  
**Hazardous Polymerization:** Will not occur.

## 11 TOXICOLOGICAL INFORMATION

**Acute Toxicity:** No data available  
**Skin Corrosion/Irritation:** No data available  
**Serious eye damage/Irritation:** No data available  
**Respiratory or skin sensitization:** No data available  
**Specific target organ toxicity (single exposure):** No data available  
**Specific target organ toxicity (repeated exposure):** No data available  
**Aspiration hazard:** No data available  
**Carcinogenicity:** No carcinogenic effects are known for the components of this product  
**Germ Cell Mutagenicity:** No mutagenic effects are known for the components of this product  
**Teratogenicity:** No teratogenic effects are known for the components of this product

## 12 ECOLOGICAL INFORMATION

**Aquatic Toxicity:** No data available  
**Elimination (persistence & degradability):** No data available  
**Bioaccumulative potential:** No data available  
**Mobility in soil:** No data available  
**Other adverse effects:** No data available

## 13 DISPOSAL CONSIDERATIONS

Dispose of in accordance with local regulations.

This material should be fully characterized for toxicity and possible reactivity prior to disposal (40 CFR 261). Use which results in chemical or physical change or contamination may subject it to regulation as a hazardous waste. Along with properly characterizing all waste materials, consult state and local regulations regarding the proper disposal of this material.

Container contents should be completely used and containers should be emptied prior to discard. Container rinsate could be considered a RCRA hazardous waste and must be disposed of with care and in full compliance with federal, state and local regulations. Larger empty containers, such as drums, should be returned to the distributor or to a drum reconditioner. To assure proper disposal of smaller empty containers, consult with state and local regulations and disposal authorities.



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## 14 TRANSPORT INFORMATION

UN1719, Caustic alkali liquids, n.o.s., 8, PGII, (Sodium hydroxide)

Certain shipping modes or package sizes may have exceptions from the transport regulations. The classification provided may not reflect those exceptions and may not apply to all shipping modes or package sizes.

DOT Transportation data (49 CFR 172.101)

See section 15 for information on Reportable Quantity chemicals (RQ)

## 15 REGULATORY INFORMATION

Component (CAS#) [%] - CODES

RQ(1000LBS), Sodium hydroxide (1310-73-2) [10-15%] CERCLA, CSWHS, MASS, OSHAWAC, PA, TSCA, TXAIR

### Regulatory CODE Descriptions

- RQ = Reportable Quantity
- CERCLA = Superfund clean up substance
- CSWHS = Clean Water Act Hazardous substances
- MASS = MA Massachusetts Hazardous Substances List
- OSHA = OSHA Workplace Air Contaminants
- PA = PA Right-To-Know List of Hazardous Substances
- TSCA = Toxic Substances Control Act
- TXAIR = TX Air Contaminants with Health Effects Screening Level

TSCA: All components of this product are listed (or are not required to be listed) in the TSCA inventory  
 EPA / CERCLA / SARA TITLE III:  
 Toxic Chemical List (SARA 313): This product does not contain any chemicals subject to routine annual toxic chemical release reporting.  
 Extremely Hazardous Substance (SARA 302/304): This product does not contain any extremely hazardous substances subject to emergency planning requirements.  
 SARA 312: Acute  
 RCRA: D002

## 16 OTHER INFORMATION

HMIS III: Health = 2, Fire = 0, Physical Hazard = 0  
 HMIS PPE: C - Safety Glasses, Gloves, Apron

HMIS		PPE	
HEALTH	2		
FLAMMABILITY	0		
PHYSICAL HAZARD	0		
PERSONAL PROTECTION	C		



## SAFETY DATA SHEET

U.S. Water Services

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**Author:** U.S. Water Services

**Revision Notes:** Updated to GHS format

**Disclaimer:**

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose(s). The above information is not claiming characteristics of the product in term of legal claims of performance / guarantee. This information only describes safety measures and no liability may arise from the use or application of the product described herein. This information is given in good faith and based on our current knowledge of the product.

Revision Date: 12/14/2018

**R-630**





# SAFETY DATA SHEET

U.S. Water Services

**R-630**

## 1 PRODUCT AND COMPANY IDENTIFICATION

**Product Identifier:** R-630  
**SDS Number:** W0006  
**Revision Date:** 8/16/2017  
**Version:** 1  
**Product Use:** Boiler Water Treatment  
**Supplier Details:** U.S. Water Services  
 12270 43rd St. NE  
 St. Michael, MN 55376

**Contact:** Non-emergency #: 866-663-7632  
**Email:** SDS@uswaterservices.com  
**Web:** www.uswaterservices.com

**EMERGENCY RESPONSE: (ChemTel)**  
**US & Canada: 800-255-3924**  
**International: +01-813-248-0585**

## 2 HAZARDS IDENTIFICATION

### Classification of the Substance or Mixture

**GHS Classification in Accordance with 29 CFR 1910 (OSHA HCS):**  
 Health, Skin corrosion/irritation, 2

### GHS Label Elements, Including Precautionary Statements

**GHS Signal Word:** **WARNING**

**GHS Hazard Pictograms:**



### GHS Hazard Statements:

H315 - Causes skin irritation

### GHS Precautionary Statements:

P264 - Wash thoroughly after handling.  
 P280 - Wear protective gloves/protective clothing/eye protection/face protection.  
 P302 + P352 - IF ON SKIN: Wash with plenty of water  
 P332 + P313 - If skin irritation occurs: Get medical advice/attention.  
 P361 + P364 - Take off immediately all contaminated clothing and wash it before reuse.  
 P301 + P312 - IF SWALLOWED: Call a POISON CENTER/ doctor/... if you feel unwell.

**Hazards not Otherwise Classified (HNOC) or not Covered by GHS**



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PPE recommendation is advisory only and based on typical use conditions. An industrial hygienist or safety officer familiar with the specific situation of anticipated use must determine actual PPE required when using this product (29 CFR 1910.132)

## 3 COMPOSITION/INFORMATION OF INGREDIENTS

### Ingredients:

Cas#	%	Chemical Name
7681-57-4	15-25%	Sodium metabisulfite

## 4 FIRST AID MEASURES

- Inhalation:** Remove from contamination. If person has stopped breathing administer artificial respiration. Seek medical attention.
- Skin Contact:** Wash off with soap and plenty of water. Remove contaminated garments and wash or destroy. Seek medical attention if irritation develops. Consult a physician if irritation develops.
- Eye Contact:** Flush eyes with plenty of running water for 15 minutes. Seek medical attention.
- Ingestion:** If conscious, give plenty of water. If discomfort or other symptoms develop, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

**Most important symptoms & effects (acute & delayed):** No data available

**Indication of need for immediate medical attention:** No data available

**Special treatment needs:** No data available

## 5 FIRE FIGHTING MEASURES

- Flash Point:** Does not Flash
- Autoignition Temp:** No data available
- LEL:** No data available
- UEL:** No data available

### Extinguishing Media:

**Suitable:** Use extinguishing media suitable for surrounding fire.

**Unsuitable:** No information available

**Hazardous combustion products:** Hazardous decomposition products formed under fire conditions- Carbon oxides, and other hazardous compounds

**Unusual Fire or Explosion Hazards:** None known

**Special protective equipment/precautions:** Wear self-contained breathing apparatus

## 6 ACCIDENTAL RELEASE MEASURES

**Personal Precautions, Protective equipment, emergency procedures:** Avoid contact with the material. See section 8 of SDS for PPE recommendations

**Environmental Precautions:** Keep runoff from entering drains or waterways



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**Spill/Leak procedures:** Contain spill or leak. Dike area if necessary to prevent spill from spreading or entering sewers and waterways. Recover as much as possible then absorb remainder with inert material. Place into closed container for disposal.

**Regulatory Requirements:** Dispose of recovered material in accordance with all applicable state and federal regulations.

## 7 HANDLING AND STORAGE

**Handling Precautions:** Avoid contact with eyes, skin, or clothing. Do not taste or swallow. Do not inhale vapor or mist. Use with adequate ventilation. For industrial use only!

**Storage Requirements:** Keep away from children. Store in closed containers away from temperature extremes and incompatible materials. Store in properly labeled containers in accordance with all local, state and federal guidelines. Do not store in zinc, aluminum, brass, or tin.

## 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

**Engineering Controls:** Provide local exhaust ventilation as needed to control misting.  
**Personal Protective Equipment:** HMIS PP, C | Safety Glasses, Gloves, Apron

**Respiratory protection:** If needed use MSHA/NIOSH approved respirator. Seek professional advice prior to respirator selection and use. Follow all requirements of OSHA respirator regulations (29 CFR 1910.134)

**Safety Stations:** Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

**General Hygiene:** Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, using the toilet, or applying cosmetics.

PPE recommendation is advisory only and based on typical use conditions. An industrial hygienist or safety officer familiar with the specific situation of anticipated use must determine actual PPE required when using this product (29 CFR 1910.132)

**Exposure Limits:**

OSHA (TWA)/PEL): Not Established

ACGIH (TWA/TLV): Not Established

## 9 PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance:</b>	Clear, Pink	<b>Odor:</b>	No appreciable odor
<b>Physical State:</b>	Liquid	<b>Solubility:</b>	Complete
<b>Odor Threshold:</b>	No data available	<b>Freezing/Melting Pt.:</b>	No data available
<b>Spec Grav./Density:</b>	10.43 Lb/Gal	<b>Flash Point:</b>	Does not flash
<b>Viscosity:</b>	No data available	<b>Auto-ignition Temp:</b>	No data available
<b>Boiling Point:</b>	>212°F	<b>UFL/LFL:</b>	No data available
<b>Partition Coefficient:</b>	No data available		
<b>Vapor Pressure:</b>	No data available		
<b>pH:</b>	~6.5		
<b>Evap. Rate:</b>	<1 (butyl acetate = 1)		
<b>Decomp Temp:</b>	No data available		



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## 10 STABILITY AND REACTIVITY

- Chemical Stability:** Product is stable under normal storage and use conditions.
- Conditions to Avoid:** Avoid temperature extremes. Protect from freezing
- Materials to Avoid:** Strong Oxidizing Agents may cause exothermic reaction
- Hazardous Decomposition:** Thermal decomposition may produce carbon oxides and other toxic compounds.
- Hazardous Polymerization:** Will not occur.

## 11 TOXICOLOGICAL INFORMATION

- Acute Toxicity:** No data available
- Skin Corrosion/Irritation:** No data available
- Serious eye damage/irritation:** No data available
- Respiratory or skin sensitization:** No data available
- Specific target organ toxicity (single exposure):** No data available
- Specific target organ toxicity (repeated exposure):** No data available
- Aspiration hazard:** No data available
- Carcinogenicity:** No carcinogenic effects are known for the components of this product
- Germ Cell Mutagenicity:** No mutagenic effects are known for the components of this product
- Teratogenicity:** No teratogenic effects are known for the components of this product

## 12 ECOLOGICAL INFORMATION

- Aquatic Toxicity:** No data available
- Elimination (persistence & degradability):** No data available
- Bioaccumulative potential:** No data available
- Mobility in soil:** No data available
- Other adverse effects:** No data available

## 13 DISPOSAL CONSIDERATIONS

Dispose of in accordance with local regulations.

This material should be fully characterized for toxicity and possible reactivity prior to disposal (40 CFR 261). Use which results in chemical or physical change or contamination may subject it to regulation as a hazardous waste. Along with properly characterizing all waste materials, consult state and local regulations regarding the proper disposal of this material.

Container contents should be completely used and containers should be emptied prior to discard. Container rinsate could be considered a RCRA hazardous waste and must be disposed of with care and in full compliance with federal, state and local regulations. Larger empty containers, such as drums, should be returned to the distributor or to a drum reconditioner. To assure proper disposal of smaller empty containers, consult with state and local regulations and disposal authorities.

## 14 TRANSPORT INFORMATION





# SAFETY DATA SHEET

U.S. Water Services

R-630

Proper Shipping Name: Non-Regulated

DOT Transportation data (49 CFR 172.101)

## 15 REGULATORY INFORMATION

Component (CAS#) [%] - CODES

Sodium metabisulfite (7681-57-4) [15-25%] MASS, OSHAWAC, PA, TSCA, TXAIR

### Regulatory CODE Descriptions

MASS = MA Massachusetts Hazardous Substances List

OSHA = OSHA Workplace Air Contaminants

PA = PA Right-To-Know List of Hazardous Substances

TSCA = Toxic Substances Control Act

TXAIR = TX Air Contaminants with Health Effects Screening Level

TSCA: All components of this product are listed (or are not required to be listed) in the TSCA inventory

EPA / CERCLA / SARA TITLE III:

Toxic Chemical List (SARA 313): This product does not contain any chemicals subject to routine annual toxic chemical release reporting.

Extremely Hazardous Substance (SARA 302/304): This product does not contain any extremely hazardous substances subject to emergency planning requirements.

SARA 312: Acute

RCRA: No data available



# SAFETY DATA SHEET

U.S. Water Services

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**R-630**

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<b>16</b>	<b>OTHER INFORMATION</b>
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HMIS III: Health = 2, Fire = 0, Physical Hazard = 0  
 HMIS PPE: C - Safety Glasses, Gloves, Apron

HMIS	
HEALTH	2
FLAMMABILITY	0
PHYSICAL HAZARD	0
PERSONAL PROTECTION	C

**Author:** U.S. Water Services

**Revision Notes:** Updated to GHS format

**Disclaimer:**

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose(s). The above information is not claiming characteristics of the product in term of legal claims of performance / guarantee. This information only describes safety measures and no liability may arise from the use or application of the product described herein. This information is given in good faith and based on our current knowledge of the product.

# **ATTACHMENT 5**

## **Editorial Corrections to the NPDES-FS-18-005-R1, Outfall 03A048 Fact Sheet**

**EPC-DO: 19-299**

**LA-UR-19-28240**

**Date:           AUG 19 2019**

# **Industrial and Sanitary Outfalls 2019 NPDES Permit Re-Application Outfall 03A048 Fact Sheet**

Los Alamos Neutron Science Center (LANSCE) Facility Operations (LFO)  
TA-53-963/964 and TA-53-978/979 Cooling Towers





## Revision Log

<u>Revision No.</u>	<u>Date</u>	<u>Page Nos.</u>	<u>Change Description</u>
<u>0</u>	<u>3/18/2019</u>	<u>NA</u>	<u>Original</u>
<u>1</u>	<u>7/31/2019</u>	<u>Attachment D, page D-5</u>	<u>Revised the summary line for copper to say "Copper, Dissolved"</u>
		<u>Attachment D, page D-5</u>	<u>Revised the summary line for aluminum, to say "Aluminum, Total"</u>
		<u>Attachment D, page D-6</u>	<u>Revised the summary line for Adjusted Gross Alpha from "Mercury" to "Adjusted Gross Alpha"</u>
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OUTFALL No.	TA - Bldg.	Year	Monitoring Period	Parameter	Quantity or Loading			Quality or Concentration						Notes		
					Average	Maximum	Units	Minimum	Average	Maximum	Units	Permit Limit	Units		Number of Samples	Frequency
03A048	TA-53-963, 964, 978, 979	2015	Jun	Total Suspended Solids				****	<0.57	<0.57	mg/L	30 - 100	mg/L	1	Quarterly	Require by Permit
03A048	TA-53-963, 964, 978, 979	2015	Sept	Total Suspended Solids				****	<0.57	<0.57	mg/L	30 - 100	mg/L	1	Quarterly	Require by Permit
03A048	TA-53-963, 964, 978, 979	2015	Dec	Total Suspended Solids				****	<0.57	<0.57	mg/L	30 - 100	mg/L	1	Quarterly	Require by Permit
03A048	TA-53-963, 964, 978, 979	2016	Mar	Total Suspended Solids				****	<1.14	<1.14	mg/L	30 - 100	mg/L	1	Quarterly	Require by Permit
03A048	TA-53-963, 964, 978, 979	2016	Jun	Total Suspended Solids				****	0.625	0.625	mg/L	30 - 100	mg/L	1	Quarterly	Require by Permit
03A048	TA-53-963, 964, 978, 979	2016	Sept	Total Suspended Solids				****	<5.7	<5.7	mg/L	30 - 100	mg/L	1	Quarterly	Require by Permit
03A048	TA-53-963, 964, 978, 979	2016	Dec	Total Suspended Solids				****	<0.57	<0.57	mg/L	30 - 100	mg/L	1	Quarterly	Require by Permit
03A048	TA-53-963, 964, 978, 979	2017	Mar	Total Suspended Solids				****	0.7	0.7	mg/L	30 - 100	mg/L	1	Quarterly	Require by Permit
03A048	TA-53-963, 964, 978, 979	2017	Jun	Total Suspended Solids				****	<0.57	<0.57	mg/L	30 - 100	mg/L	1	Quarterly	Require by Permit
03A048	TA-53-963, 964, 978, 979	2017	Sept	Total Suspended Solids				****	<0.57	<0.57	mg/L	30 - 100	mg/L	1	Quarterly	Require by Permit
03A048	TA-53-963, 964, 978, 979	2017	Dec	Total Suspended Solids				****	<0.57	<0.57	mg/L	30 - 100	mg/L	1	Quarterly	Require by Permit
03A048	TA-53-963, 964, 978, 979	2018	Mar	Total Suspended Solids				****	5.9	5.9	mg/L	30 - 100	mg/L	1	Quarterly	Require by Permit
03A048	TA-53-963, 964, 978, 979	2018	Jun	Total Suspended Solids				****	<0.57	<0.57	mg/L	30 - 100	mg/L	1	Quarterly	Require by Permit
03A048	TA-53-963, 964, 978, 979	2018	Sept	Total Suspended Solids				****	<0.591	<0.613	mg/L	30 - 100	mg/L	2	Quarterly	Require by Permit
<b>Total Suspended Solids</b>					Daily Average				2.0					17		
<b>Total Suspended Solids</b>					Maximum 30 Day Average				5.9					17		
<b>Total Suspended Solids</b>					Maximum				0.00284	0.00284	mg/L	0.013	mg/L	1	Yearly	Require by Permit
03A048	TA-53-963, 964, 978, 979	2015	Sept	Arsenic, Total				****	0.00426	0.00426	mg/L	0.013	mg/L	1	Yearly	Require by Permit
03A048	TA-53-963, 964, 978, 979	2016	Sept	Arsenic, Total				****	0.00294	0.00294	mg/L	0.013	mg/L	1	Yearly	Require by Permit
03A048	TA-53-963, 964, 978, 979	2017	Sept	Arsenic, Total				****	0.0052	0.0052	mg/L	0.013	mg/L	2	Yearly	Require by Permit
03A048	TA-53-963, 964, 978, 979	2018	Sept	Arsenic, Total				****	0.004060	0.004060	mg/L	0.013	mg/L	5	Yearly	Require by Permit
<b>Arsenic, Total</b>					Daily Average				0.00620	0.00620				5		
<b>Arsenic, Total</b>					Maximum 30 Day Average				0.00426	0.00426				5		
<b>Arsenic, Total</b>					Maximum				0.00127	0.00127	mg/L	0.0233	mg/L	1	Yearly	Require by Permit
03A048	TA-53-963, 964, 978, 979	2015	Sept	Copper, Dissolved				****	0.00127	0.00127	mg/L	0.0233	mg/L	1	Yearly	Require by Permit
03A048	TA-53-963, 964, 978, 979	2016	Sept	Copper, Dissolved				****	0.00149	0.00149	mg/L	0.0233	mg/L	1	Yearly	Require by Permit
03A048	TA-53-963, 964, 978, 979	2017	Sept	Copper, Dissolved				****	0.00109	0.00109	mg/L	0.0233	mg/L	1	Yearly	Require by Permit
03A048	TA-53-963, 964, 978, 979	2018	Sept	Copper, Dissolved				****	0.0013	0.0013	mg/L	0.0233	mg/L	1	Yearly	Require by Permit
<b>Copper, Dissolved</b>					Daily Average				0.00149	0.00149				4		
<b>Copper, Dissolved</b>					Maximum 30 Day Average				0.00149	0.00149				4		
<b>Copper, Dissolved</b>					Maximum				0.00149	0.00149	mg/L	7.592	mg/L	4	Yearly	Require by Permit
03A048	TA-53-963, 964, 978, 979	2015	Sept	Aluminum, Total				****	<0.015	<0.015	mg/L	7.592	mg/L	1	Yearly	Require by Permit
03A048	TA-53-963, 964, 978, 979	2016	Sept	Aluminum, Total				****	<0.015	<0.015	mg/L	7.592	mg/L	1	Yearly	Require by Permit
03A048	TA-53-963, 964, 978, 979	2017	Sept	Aluminum, Total				****	<0.0193	<0.0193	mg/L	7.592	mg/L	1	Yearly	Require by Permit
03A048	TA-53-963, 964, 978, 979	2018	Sept	Aluminum, Total				****	<0.0193	<0.0193	mg/L	7.592	mg/L	1	Yearly	Require by Permit
<b>Aluminum, Total</b>					Daily Average				0.0000	0.0000				4		
<b>Aluminum, Total</b>					Maximum 30 Day Average				0	0				4		
<b>Aluminum, Total</b>					Maximum				<0.067	<0.067	mg/L	1.4	mg/L	4	Yearly	Require by Permit
03A048	TA-53-963, 964, 978, 979	2015	Sept	Mercury, Dissolved				****	<0.067	<0.067	mg/L	1.4	mg/L	1	Yearly	Require by Permit
03A048	TA-53-963, 964, 978, 979	2016	Sept	Mercury, Dissolved				****	<0.067	<0.067	mg/L	1.4	mg/L	1	Yearly	Require by Permit
03A048	TA-53-963, 964, 978, 979	2017	Sept	Mercury, Dissolved				****	<0.067	<0.067	mg/L	1.4	mg/L	1	Yearly	Require by Permit
03A048	TA-53-963, 964, 978, 979	2018	Sept	Mercury, Dissolved				****	<0.067	<0.067	mg/L	1.4	mg/L	1	Yearly	Require by Permit
<b>Mercury, Dissolved</b>					Daily Average				0.0000	0.0000				4		

OUTFALL No.	TA - Bldg.	Monitoring Year	Monitoring Period	Parameter	Quantity or Loading			Quality or Concentration					Units	Number of Samples	Frequency	Notes
					Average	Maximum	Units	Minimum	Average	Maximum	Units	Permit Limit				
				Mercury, Dissolved	Maximum 30 Day Average	Maximum		0		0			4			
03A048	TA-53-963, 964, 978, 979	2015	Sept	Mercury, Total			Maximum	****	****	<0.067	mg/L	0.77	1	Yearly	Require by Permit	
03A048	TA-53-963, 964, 978, 979	2016	Sept	Mercury, Total				****	****	<0.067	mg/L	0.77	1	Yearly	Require by Permit	
03A048	TA-53-963, 964, 978, 979	2017	Sept	Mercury, Total				****	****	<0.067	mg/L	0.77	1	Yearly	Require by Permit	
03A048	TA-53-963, 964, 978, 979	2018	Sept	Mercury, Total				****	****	<0.067	mg/L	0.77	2	Yearly	Require by Permit	
				Mercury, Total	Daily Average			0.0000					5			
				Mercury, Total	Maximum 30 Day Average			0					5			
				Mercury, Total	Maximum			****	0.00717	0.00717	mg/L	Report	1	Term	Require by Permit	
03A048	TA-53-963, 964, 978, 979	2015	Sept	Chromium VI									1			
				Chromium VI	Daily Average								1			
				Chromium VI	Maximum 30 Day Average								1			
				Chromium VI	Maximum					0.00717			1			
03A048	TA-53-963, 964, 978, 979	2016	Sept	Adjusted Gross Alpha				****	0.597	0.597	pCi/L	Report	1	Term	Require by Permit	
				Mercury, Total	Daily Average								1			
				Mercury, Total	Maximum 30 Day Average								1			
				Mercury, Total	Maximum					0.597			1			





# **Industrial and Sanitary Outfalls 2019 NPDES Permit Re-Application Outfall 03A113 Fact Sheet**

Los Alamos Neutron Science Center (LANSCE) Facility Operations (LFO)  
TA-53-952 Cooling Tower



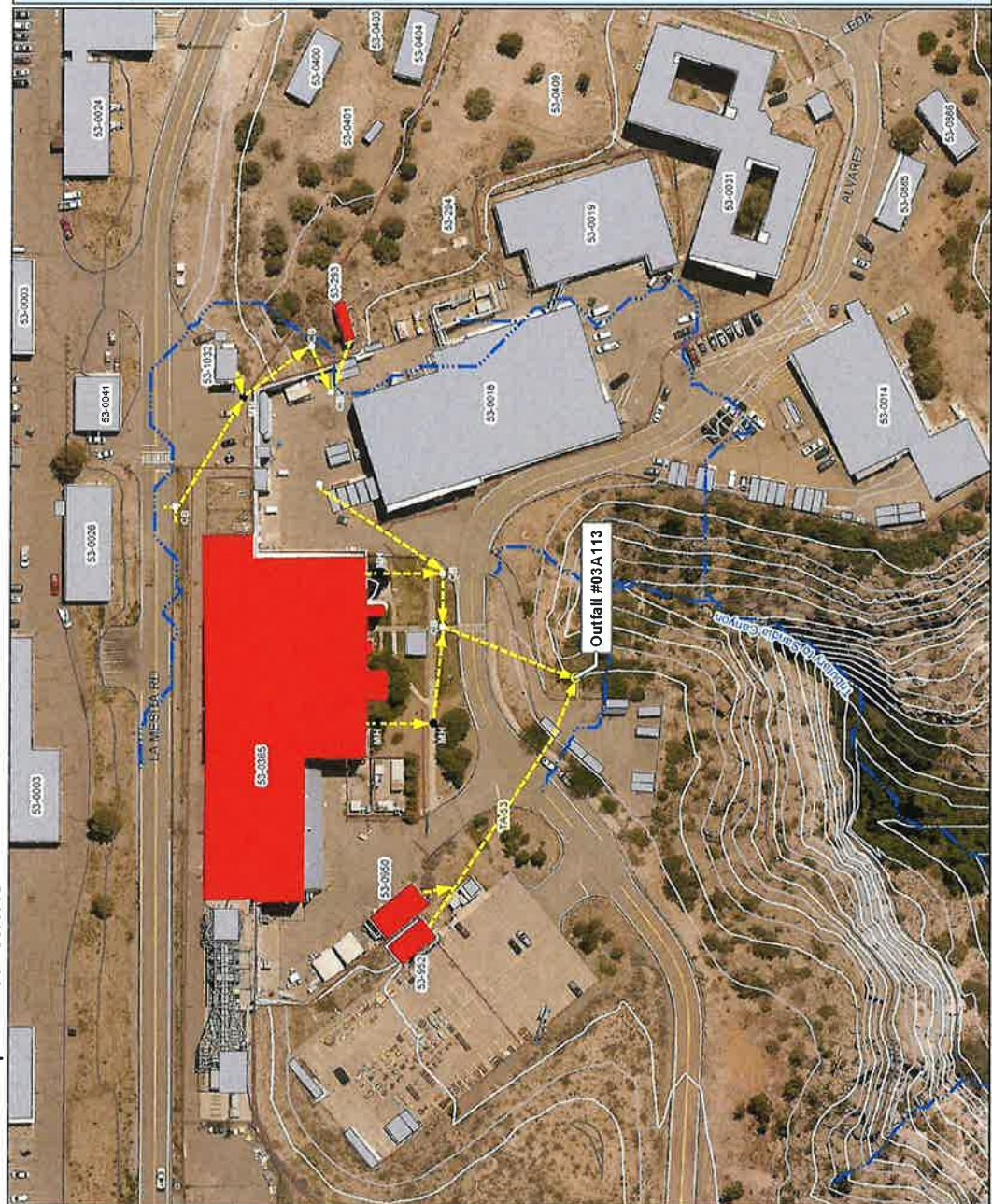
## Revision Log

<u>Revision No.</u>	<u>Date</u>	<u>Page Nos.</u>	<u>Change Description</u>
<u>0</u>	<u>3/18/2019</u>	<u>NA</u>	<u>Original</u>
<u>1</u>	<u>7/31/2019</u>	<u>Attachment A, page A-1</u>	<u>Replaced the location map that shows Outfall 03A048 with the correct map that shows Outfall 03A113.</u>
		<u>Attachment D, page D-4</u>	<u>Replaced Phosphorus with "Phosphorus, Total"</u>
		<u>Attachment D, page D-5</u>	<u>Replaced the summary line for copper with "Copper, Dissolved."</u>
		<u>Attachment D, page D-5</u>	<u>Replaced the summary line for aluminum with "Aluminum, Total."</u>
		<u>Attachment D, page D-5</u>	<u>Replaced the summary line for Adjusted Gross Alpha from "Mercury, Total" to "Adjusted Gross Alpha."</u>
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ATTACHMENT A: Location Map for Outfall 03A113



**NPDES Permit Re-Application Project**  
**TA-53 Building 293, 365, 950,**  
**952, Outfall #03A113**

**Legend**

- NPDES Outfall
- Outfall Flow
- Springs
- Drainages
- 100ft Contours
- 20ft Contours
- 10ft Contours
- Fences
- Dirt Roads
- Paved Roads
- Source Structures
- Building Sealed By Source Structures
- LANL Boundary
- Technical Areas
- Catch Basin
- Manhole

State Plane Coordinate System  
 New Mexico Central Zone US Feet  
 NAD 1983 Datum, NGVD 1929

Map Updated By: Behnam M. Vafaei, J.E. PROG  
 Map #18-129-03-21 February 2019

Scale: 1:1,000

Feet: 0 30 60 120 180 240  
 Meters: 0 10 20 40 60 80

North Arrow

Disclaimer: This map was created for water quality purposes and should not be used for any other purpose. EPC-DO is not responsible for any errors or omissions on this map.

OUTFALL No.	TA - Bldg.	Year	Monitoring Period	Parameter	Quantity or Loading			Quality or Concentration							Notes	
					Average	Maximum	Units	Minimum	Average	Maximum	Units	Permit Limit	Units	Number of Samples		Frequency
03A113	TA-53-950, 952, 293	2017	Mar	Total Residual Chlorine				****	****	mg/L	0.011	mg/L	5.0	Weekly	Permit Required	
03A113	TA-53-950, 952, 293	2017	Apr	Total Residual Chlorine				****	****	mg/L	0.011	mg/L	4.0	Weekly	Permit Required	
03A113	TA-53-950, 952, 293	2017	May	Total Residual Chlorine				****	****	mg/L	0.011	mg/L	4.0	Weekly	Permit Required	
03A113	TA-53-950, 952, 293	2017	Jun	Total Residual Chlorine				****	****	mg/L	0.011	mg/L	5.0	Weekly	Permit Required	
03A113	TA-53-950, 952, 293	2017	Jul	Total Residual Chlorine				****	****	mg/L	0.011	mg/L	4.0	Weekly	Permit Required	
03A113	TA-53-950, 952, 293	2017	Aug	Total Residual Chlorine				****	****	mg/L	0.011	mg/L	5.0	Weekly	Permit Required	
03A113	TA-53-950, 952, 293	2017	Sept	Total Residual Chlorine				****	****	mg/L	0.011	mg/L	4.0	Weekly	Permit Required	
03A113	TA-53-950, 952, 293	2017	Oct	Total Residual Chlorine				****	****	mg/L	0.011	mg/L	4.0	Weekly	Permit Required	
03A113	TA-53-950, 952, 293	2017	Nov	Total Residual Chlorine				****	****	mg/L	0.011	mg/L	5.0	Weekly	Permit Required	
03A113	TA-53-950, 952, 293	2017	Dec	Total Residual Chlorine				****	****	mg/L	0.011	mg/L	4.0	Weekly	Permit Required	
03A113	TA-53-950, 952, 293	2018	Jan	Total Residual Chlorine				****	****	mg/L	0.011	mg/L	4.0	Weekly	Permit Required	
03A113	TA-53-950, 952, 293	2018	Feb	Total Residual Chlorine				****	****	mg/L	0.011	mg/L	4.0	Weekly	Permit Required	
03A113	TA-53-950, 952, 293	2018	Mar	Total Residual Chlorine				****	****	mg/L	0.011	mg/L	4.0	Weekly	Permit Required	
03A113	TA-53-950, 952, 293	2018	Apr	Total Residual Chlorine				****	****	mg/L	0.011	mg/L	5.0	Weekly	Permit Required	
03A113	TA-53-950, 952, 293	2018	May	Total Residual Chlorine				****	****	mg/L	0.011	mg/L	5.0	Weekly	Permit Required	
03A113	TA-53-950, 952, 293	2018	Jun	Total Residual Chlorine				****	****	mg/L	0.011	mg/L	4.0	Weekly	Permit Required	
03A113	TA-53-950, 952, 293	2018	Jul	Total Residual Chlorine				****	****	mg/L	0.011	mg/L	5.0	Weekly	Permit Required	
03A113	TA-53-950, 952, 293	2018	Aug	Total Residual Chlorine				****	****	mg/L	0.011	mg/L	4.0	Weekly	Permit Required	
03A113	TA-53-950, 952, 293	2018	Sept	Total Residual Chlorine				****	****	mg/L	0.011	mg/L	5.0	Weekly	Permit Required	
<b>Total Residual Chlorine</b>					<b>Daily Average</b>								<b>201</b>			
<b>Total Residual Chlorine</b>					<b>Maximum 30 Day Average</b>									<b>201</b>		
<b>Total Residual Chlorine</b>					<b>Maximum</b>									<b>201</b>		
03A113	TA-53-950, 952, 293	2014	Dec	Phosphorus, Total				****	0.142	mg/L	20 - 40	mg/L	1	Quarterly	Permit Required	
03A113	TA-53-950, 952, 293	2015	Mar	Phosphorus, Total				****	0.0949	mg/L	20 - 40	mg/L	1	Quarterly	Permit Required	
03A113	TA-53-950, 952, 293	2015	Jun	Phosphorus, Total				****	0.155	mg/L	20 - 40	mg/L	1	Quarterly	Permit Required	
03A113	TA-53-950, 952, 293	2015	Sept	Phosphorus, Total				****	0.0729	mg/L	20 - 40	mg/L	1	Quarterly	Permit Required	
03A113	TA-53-950, 952, 293	2015	Dec	Phosphorus, Total				****	<0.056	mg/L	20 - 40	mg/L	1	Quarterly	Permit Required	
03A113	TA-53-950, 952, 293	2016	Mar	Phosphorus, Total				****	0.0939	mg/L	20 - 40	mg/L	1	Quarterly	Permit Required	
03A113	TA-53-950, 952, 293	2016	Jun	Phosphorus, Total				****	0.0722	mg/L	20 - 40	mg/L	1	Quarterly	Permit Required	
03A113	TA-53-950, 952, 293	2016	Sept	Phosphorus, Total				****	0.302	mg/L	20 - 40	mg/L	1	Quarterly	Permit Required	
03A113	TA-53-950, 952, 293	2016	Dec	Phosphorus, Total				****	0.147	mg/L	20 - 40	mg/L	1	Quarterly	Permit Required	
03A113	TA-53-950, 952, 293	2017	Mar	Phosphorus, Total				****	0.074	mg/L	20 - 40	mg/L	1	Quarterly	Permit Required	
03A113	TA-53-950, 952, 293	2017	Jun	Phosphorus, Total				****	0.0948	mg/L	20 - 40	mg/L	1	Quarterly	Permit Required	
03A113	TA-53-950, 952, 293	2017	Sept	Phosphorus, Total				****	0.0948	mg/L	20 - 40	mg/L	1	Quarterly	Permit Required	
03A113	TA-53-950, 952, 293	2017	Dec	Phosphorus, Total				****	0.144	mg/L	20 - 40	mg/L	1	Quarterly	Permit Required	
03A113	TA-53-950, 952, 293	2018	Mar	Phosphorus, Total				****	0.103	mg/L	20 - 40	mg/L	1	Quarterly	Permit Required	
03A113	TA-53-950, 952, 293	2018	Jun	Phosphorus, Total				****	0.144	mg/L	20 - 40	mg/L	1	Quarterly	Permit Required	
03A113	TA-53-950, 952, 293	2018	Sept	Phosphorus, Total				****	0.0982	mg/L	20 - 40	mg/L	1	Quarterly	Permit Required	
<b>Phosphorus, Total</b>					<b>Daily Average</b>				<b>0.1</b>				<b>16</b>			
<b>Phosphorus, Total</b>					<b>Maximum 30 Day Average</b>				<b>0.302</b>					<b>16</b>		
<b>Phosphorus, Total</b>					<b>Maximum</b>				<b>0.302</b>					<b>16</b>		
03A113	TA-53-950, 952, 293	2014	Dec	Total Suspended Solids				****	<0.57	mg/L	30 - 100	mg/L	1	Quarterly	Permit Required	
03A113	TA-53-950, 952, 293	2015	Mar	Total Suspended Solids				****	<0.57	mg/L	30 - 100	mg/L	1	Quarterly	Permit Required	
03A113	TA-53-950, 952, 293	2015	Jun	Total Suspended Solids				****	1	mg/L	30 - 100	mg/L	1	Quarterly	Permit Required	



OUTFALL No.	TA - Bldg.	Monitoring Period	Year	Parameter	Quantity or Loading					Quality or Concentration					Notes			
					Average	Maximum	Units	Minimum	Average	Maximum	Units	Permit Limit	Units	Number of Samples		Frequency		
03A113	TA-53-950, 952, 293	2015	Sept	Total Suspended Solids	1			****	1			mg/L	30 - 100	mg/L	1	Quarterly	Permit Required	
03A113	TA-53-950, 952, 293	2015	Dec	Total Suspended Solids	<0.57			****	<0.57			mg/L	30 - 100	mg/L	1	Quarterly	Permit Required	
03A113	TA-53-950, 952, 293	2016	Mar	Total Suspended Solids	0.7			****	0.7			mg/L	30 - 100	mg/L	1	Quarterly	Permit Required	
03A113	TA-53-950, 952, 293	2016	Jun	Total Suspended Solids	<0.57			****	<0.57			mg/L	30 - 100	mg/L	1	Quarterly	Permit Required	
03A113	TA-53-950, 952, 293	2016	Sept	Total Suspended Solids	<0.582			****	<0.582			mg/L	30 - 100	mg/L	1	Quarterly	Permit Required	
03A113	TA-53-950, 952, 293	2016	Dec	Total Suspended Solids	5.68			****	5.68			mg/L	30 - 100	mg/L	1	Quarterly	Permit Required	
03A113	TA-53-950, 952, 293	2017	Mar	Total Suspended Solids	<0.57			****	<0.57			mg/L	30 - 100	mg/L	1	Quarterly	Permit Required	
03A113	TA-53-950, 952, 293	2017	Jun	Total Suspended Solids	<0.57			****	<0.57			mg/L	30 - 100	mg/L	1	Quarterly	Permit Required	
03A113	TA-53-950, 952, 293	2017	Sept	Total Suspended Solids	<0.57			****	<0.57			mg/L	30 - 100	mg/L	1	Quarterly	Permit Required	
03A113	TA-53-950, 952, 293	2017	Dec	Total Suspended Solids	0.6			****	0.6			mg/L	30 - 100	mg/L	1	Quarterly	Permit Required	
03A113	TA-53-950, 952, 293	2018	Mar	Total Suspended Solids	<0.57			****	<0.57			mg/L	30 - 100	mg/L	1	Quarterly	Permit Required	
03A113	TA-53-950, 952, 293	2018	Jun	Total Suspended Solids	<0.57			****	<0.57			mg/L	30 - 100	mg/L	1	Quarterly	Permit Required	
03A113	TA-53-950, 952, 293	2018	Sept	Total Suspended Solids	<0.57			****	<0.57			mg/L	30 - 100	mg/L	1	Quarterly	Permit Required	
				<b>Total Suspended Solids</b>	<b>1.8</b>	<b>Daily Average</b>									<b>16</b>			
				<b>Total Suspended Solids</b>	<b>5.68</b>	<b>Maximum 30 Day Average</b>										<b>16</b>		
				<b>Total Suspended Solids</b>		<b>Maximum</b>										<b>16</b>		
03A113	TA-53-950, 952, 293	2015	Sept	Copper, Dissolved	****			****	****			mg/L	0.00315	mg/L	1	Yearly	Permit Required	
03A113	TA-53-950, 952, 293	2016	Sept	Copper, Dissolved	****			****	****			mg/L	0.00728	mg/L	1	Yearly	Permit Required	
03A113	TA-53-950, 952, 293	2017	Sept	Copper, Dissolved	****			****	****			mg/L	0.00395	mg/L	1	Yearly	Permit Required	
03A113	TA-53-950, 952, 293	2018	Sept	Copper, Dissolved	****			****	****			mg/L	0.00489	mg/L	1	Yearly	Permit Required	
				<b>Copper, Dissolved</b>	<b>0.0048</b>	<b>Daily Average</b>									<b>4</b>			
				<b>Copper, Dissolved</b>	<b>0.00728</b>	<b>Maximum 30 Day Average</b>									<b>4</b>			
				<b>Copper, Dissolved</b>		<b>Maximum</b>									<b>4</b>			
03A113	TA-53-950, 952, 293	2015	Sept	Aluminum, Total	****			****	****			mg/L	<0.015	mg/L	1	Yearly	Permit Required	
03A113	TA-53-950, 952, 293	2016	Sept	Aluminum, Total	****			****	****			mg/L	<0.015	mg/L	1	Yearly	Permit Required	
03A113	TA-53-950, 952, 293	2017	Sept	Aluminum, Total	****			****	****			mg/L	<0.0193	mg/L	1	Yearly	Permit Required	
03A113	TA-53-950, 952, 293	2018	Sept	Aluminum, Total	****			****	****			mg/L	<0.0193	mg/L	1	Yearly	Permit Required	
				<b>Aluminum, Total</b>		<b>Daily Average</b>									<b>4</b>			
				<b>Aluminum, Total</b>	<b>0</b>	<b>Maximum 30 Day Average</b>									<b>4</b>			
				<b>Aluminum, Total</b>		<b>Maximum</b>									<b>4</b>			
03A113	TA-53-950, 952, 293	2016	Sept	Adjusted Gross Alpha	****			****	0			pCi/L	NA	mg/L	1	Term	Permit Required	
				<b>Adjusted Gross Alpha</b>		<b>Daily Average</b>									<b>1</b>			
				<b>Adjusted Gross Alpha</b>		<b>Maximum 30 Day Average</b>									<b>1</b>			
				<b>Adjusted Gross Alpha</b>		<b>Maximum</b>									<b>1</b>			

# **ATTACHMENT 7**

## **Editorial Corrections to the NPDES-FS-18-007-R1, Outfall 03A160 Fact Sheet**

**EPC-DO: 19-299**

**LA-UR-19-28240**

**Date:**                     **AUG 19 2019**

# **Industrial and Sanitary Outfalls 2019 NPDES Permit Re-Application Outfall 03A160 Fact Sheet**

Science and Technology Operations (STO)  
National High Magnetic Field Laboratory (NHMFL)  
Cooling Towers



## Revision Log

<u>Revision No.</u>	<u>Date</u>	<u>Page Nos.</u>	<u>Change Description</u>
<u>0</u>	<u>3/18/2019</u>	<u>NA</u>	<u>Original</u>
<u>1</u>	<u>7/31/2019</u>	<u>Attachment D, page D-8</u>	<u>Revised the summary line for arsenic to say "Arsenic, Total."</u>
		<u>Attachment D, page D-8</u>	<u>Revised the summary line for Aluminum to say "Aluminum, Total."</u>
		<u>Attachment D, page D-8</u>	<u>Revised the summary line for Chromium VI to say "Chromium VI."</u>
		<u>Attachment D, page D-8</u>	<u>Revised Gross Alpha to say "Adjusted Gross Alpha."</u>
		<u>Attachment D, page D-8</u>	<u>Revised the summary line for Adjusted Gross Alpha to say "Adjusted Gross Alpha."</u>
		<u>Attachment E, page E-4</u>	<u>Replaced the MSDS for GC Formula 315 with the current SDS.</u>
		<u>Attachment E, page E-11</u>	<u>Replaced the MSDS for GC Formula 314-T with the current SDS.</u>
		<u>Attachment E, page E-18</u>	<u>Replaced the MSDS for Formula 2011 with the current SDS.</u>
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-	-	-	-

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OUTFALL No.	TA - Bldg.	Monitoring Period	Year	Parameter	Quantity or Loading			Quality or Concentration							
					Average	Maximum	Units	Minimum	Average	Maximum	Units	Permit Limit	Units	Number of Samples	Frequency
03A160	TA35-294, 301	Sept	2017	Phosphorus, Total				****	3.1	3.1	mg/L	20 - 40	mg/L	1	Quarterly
03A160	TA35-294, 301	Dec	2017	Phosphorus, Total			****	0.366	0.366	0.366	mg/L	20 - 40	mg/L	1	Quarterly
03A160	TA35-294, 301	Mar	2018	Phosphorus, Total			****	0.0928	0.0928	0.0928	mg/L	20 - 40	mg/L	1	Quarterly
03A160	TA35-294, 301	Jun	2018	Phosphorus, Total			****	****	****	****	mg/L	20 - 40	mg/L	0	Quarterly
03A160	TA35-294, 301	Sept	2018	Phosphorus, Total			****	****	****	****	mg/L	20 - 40	mg/L	0	Quarterly
				Phosphorus, Total	Daily Average			0.325	0.325	0.325	mg/L	20 - 40	mg/L	14	Quarterly
				Phosphorus, Total	Maximum 30 Day Average			3.100	3.100	3.100	mg/L			14	
				Phosphorus, Total	Maximum			****	0.00174	0.00174	mg/L	0.013 - 0.018	mg/L	1	Yearly
03A160	TA35-294, 301	Sept	2015	Arsenic, Total			****	0.00242	0.00242	0.00242	mg/L	0.013 - 0.018	mg/L	1	Yearly
03A160	TA35-294, 301	Sept	2016	Arsenic, Total			****	0.00259	0.00259	0.00259	mg/L	0.013 - 0.018	mg/L	1	Yearly
03A160	TA35-294, 301	Sept	2017	Arsenic, Total			****	****	****	****	mg/L	0.013 - 0.018	mg/L	1	Yearly
03A160	TA35-294, 301	Sept	2018	Arsenic, Total			****	****	****	****	mg/L	0.013 - 0.018	mg/L	1	Yearly
				Arsenic, Total	Daily Average			0.00225	0.00225	0.00225	mg/L			4	
				Arsenic, Total	Maximum 30 Day Average			0.00259	0.00259	0.00259	mg/L			4	
				Arsenic, Total	Maximum			****	****	****	mg/L	NA	NA	1	Yearly
03A160	TA35-294, 301	Sept	2015	Aluminum, Total			****	****	****	****	mg/L	NA	NA	1	Yearly
03A160	TA35-294, 301	Sept	2016	Aluminum, Total			****	****	****	****	mg/L	NA	NA	1	Yearly
03A160	TA35-294, 301	Sept	2017	Aluminum, Total			****	****	****	****	mg/L	NA	NA	1	Yearly
03A160	TA35-294, 301	Sept	2018	Aluminum, Total			****	****	****	****	mg/L	NA	NA	1	Yearly
				Aluminum, Total	Daily Average			0.00000	0.00000	0.00000	mg/L	NA	NA	4	
				Aluminum, Total	Maximum 30 Day Average			0.00000	0.00000	0.00000	mg/L	NA	NA	4	
				Aluminum, Total	Maximum			****	0.0087	0.0087	mg/L	NA	NA	1	Term
03A160	TA35-294, 301	Sept	2015	Chromium VI			****	****	****	****	mg/L	NA	NA	0	Term
03A160	TA35-294, 301	Sept	2016	Chromium VI			****	****	****	****	mg/L	NA	NA	0	Term
03A160	TA35-294, 301	Sept	2017	Chromium VI			****	****	****	****	mg/L	NA	NA	0	Term
03A160	TA35-294, 301	Sept	2018	Chromium VI			****	****	****	****	mg/L	NA	NA	0	Term
				Chromium VI	Daily Average			0.00000	0.00000	0.00000	mg/L	NA	NA	1	
				Chromium VI	Maximum 30 Day Average			0.00000	0.00000	0.00000	mg/L	NA	NA	1	
				Chromium VI	Maximum			****	****	****	mg/L	NA	NA	0	Term
03A160	TA35-294, 301	Sept	2015	Adjusted Gross Alpha			****	0	0	0	pCi/L	NA	NA	1	Term
03A160	TA35-294, 301	Sept	2016	Adjusted Gross Alpha			****	****	****	****	pCi/L	NA	NA	1	Term
03A160	TA35-294, 301	Sept	2017	Adjusted Gross Alpha			****	****	****	****	pCi/L	NA	NA	0	Term
03A160	TA35-294, 301	Sept	2018	Adjusted Gross Alpha			****	****	****	****	pCi/L	NA	NA	0	Term
				Adjusted Gross Alpha	Daily Average			0.00000	0.00000	0.00000	pCi/L	NA	NA	1	
				Adjusted Gross Alpha	Maximum 30 Day Average			0.00000	0.00000	0.00000	pCi/L	NA	NA	1	
				Adjusted Gross Alpha	Maximum			****	****	****	pCi/L	NA	NA	1	

# GC FORMULA 315



**SAFETY DATA SHEET**

**SECTION 1 - PRODUCT IDENTIFICATION**

PRODUCT NAME:	FORMULA 315
PRODUCT USE:	BIOCIDE
RESTRICTIONS ON USE:	Refer to label, available technical information, and other appropriate sections of this SDS.
UN NUMBER:	3265
PROPER SHIPPING NAME:	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE), 8, PG II
MANUFACTURER'S NAME:	Garratt-Callahan Company
ADDRESS:	50 Ingold Road, Burlingame, CA 94010-2206
EMERGENCY PHONE:	<b>North America: CHEMTREC: 1-800-424-9300</b> <b>Outside North America: +1-703-527-3887</b>
BUSINESS PHONE:	Product Information: 650-697-5811
SDS NUMBER:	SD3315
DATE OF REVISION:	2/11/2016

**SECTION 2 - HAZARDS IDENTIFICATION**

**SIGNAL WORD:** WARNING



**GHS HAZARD STATEMENT:**

- H302: Harmful if swallowed. 4
- H315: Causes skin irritation. 2
- H320: Causes eye irritation. 2B
- H335: May cause respiratory irritation. 3

**GHS PREVENTATIVE STATEMENTS:**

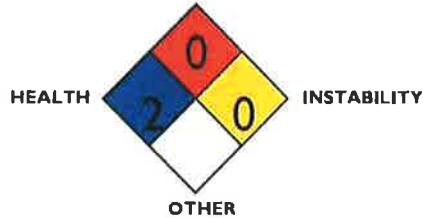
- P101: If medical advice is needed, have product container or label at hand.
- P102: Keep out of reach of children.
- P103: Read label before use.
- P261: Avoid breathing dust/fume/gas/mist/vapours/spray.
- P264: Wash all exposed skin/hair thoroughly after handling.
- P270: Do not eat, drink or smoke when using this product.
- P271: Use only outdoors or in a well-ventilated area.
- P280: Wear protective gloves/protective clothing/eye protection/face protection.

**HAZARDOUS MATERIAL IDENTIFICATION SYSTEM**

HEALTH HAZARD (BLUE)	2
FLAMMABILITY HAZARD (RED)	0
HAZARD (YELLOW)	0

Hazard Scale  
 0=Minimal  
 1=Slight  
 2=Moderate  
 3=Serious  
 4=Severe  
 \*=Chronic hazard

**NFPA RATING  
FLAMMABILITY**



**SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS**

<b>Hazardous Ingredients</b>	<b>CAS#</b>	<b>EC#</b>	<b>ICSC#</b>	<b>WT%</b>
MAGNESIUM NITRATE	10377-60-3	233-826-7	1041	1-3
5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE	26172-55-4	247-500-7	NA	1-2
2-METHYL-4-ISOTHIAZOLIN-3-ONE	2682-20-4	220-239-6	NA	<1
MAGNESIUM CHLORIDE	7786-30-3	232-094-6	0764	<1

**SECTION 4 - FIRST AID MEASURES**

P312: Call a POISON CENTER or doctor/physician if you feel unwell. Take copy of label and SDS to health professional with contaminated individual.

**WARNING:** This product is a non-flammable, clear yellow green liquid with a pungent odor. Harmful if swallowed, causes skin and eye irritation, may cause respiratory irritation. Also refer to Section 11 for symptoms, effects, and likely routes of exposure for this product.

**TARGET ORGANS:**

ACUTE irritation of skin, eyes, respiratory and gastrointestinal systems.  
CHRONIC Irritation of skin, eyes, respiratory and gastrointestinal systems.

**SKIN EXPOSURE:** P302+P352: IF ON SKIN: Wash with soap and water. Minimum flushing is for 15 minutes. P362: Take off contaminated clothing and wash before reuse. P312: Call a POISON CENTER or doctor/physician if you feel unwell.

**EYE EXPOSURE:** P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing. Use sufficient force to open eyelids. Have contaminated individual "roll" eyes. Minimum flushing is for 15 minutes. P337+P313: If eye irritation persists get medical advice/attention.

**INHALATION:** If vapors, mists, or sprays generated by this product are inhaled, remove contaminated individual to fresh air. Remove or cover gross contamination to avoid exposure to rescuers. P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

**INGESTION:** P301+P312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Do NOT induce vomiting. P330: Rinse mouth. Never induce vomiting or give diluents (milk or water) by mouth to someone who is unconscious, having convulsions, or unable to swallow.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Skin and respiratory disorders, as well as conditions involving the "Target Organs" (see Section 3, Hazard Identification) may be aggravated by prolonged overexposures to this product.

**NOTES TO PHYSICIAN:** Treat symptoms as demonstrated by signs and distress in the patient.

**SECTION 5 - FIRE FIGHTING MEASURES****SUITABLE (AND UNSUITABLE) EXTINGUISHING MATERIALS:**

Product is non-flammable. Use media appropriate for the surrounding fire.

**SPECIFIC HAZARDS ARISING FROM THE CHEMICAL:**

Non-Flammable Liquid.  
Explosion hazards in Presence of Various Substances: Non-Explosive in presence of open flames and sparks, or shocks.  
Special Remarks on Explosion Hazards: None known

**SPECIAL PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIREFIGHTERS:**

Incipient fire responders should wear eye protection. Structural firefighters must wear Self-Contained Breathing Apparatus and full protective equipment. Isolate materials not yet involved in the fire and protect personnel. Move containers from fire area if this can be done without risk; otherwise, cool with carefully applied water spray. If possible, prevent runoff water from entering storm drains, bodies of water, or other environmentally sensitive areas.



## SECTION 6 - ACCIDENTAL RELEASE MEASURES

### PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT, ENVIRONMENTAL PRECAUTIONS AND EMERGENCY PROCEDURES.

**WARNING:** Any container expansion or rounding indicates pressure build-up. Use extreme caution. When opening, release pressure slowly through opening.

**SPILL AND LEAK RESPONSE:** Uncontrolled releases should be responded to by appropriately trained personnel using pre-planned procedures. Proper protective equipment should be used, refer to Section B - exposure controls.

**Small Spill:** Mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. P391: Collect spillage.

**Large Spill:** Restrict access to the area. Provide adequate protective equipment and ventilation. Stop leak if without risk. Remove chemicals which can react with the spilled material. Add dry inert material to contain and absorb spilled material. Prevent entry into surface waters, sewers, basements or confined areas, dike if needed. Ensure that exposure to product is not at a concentration exceeding regulatory limits. Decontaminate the area thoroughly. Decontaminate all response equipment with soapy water before returning to service. Place all spill residue in a suitable container and seal. P391: Collect spillage.

## SECTION 7 - HANDLING AND STORAGE

**PRECAUTIONS FOR SAFE HANDLING:** Keep out of reach of children. All employees who handle this material should be trained to handle it safely. Open containers slowly on a stable surface. As with all chemicals, avoid getting this product ON YOU or IN YOU. Avoid direct or prolonged contact with skin or eyes. Do not ingest. Wash thoroughly after handling this product. Do not eat, drink, smoke, or apply cosmetics while handling this product. Avoid breathing vapors, dusts or mists generated by this product. Use in a well-ventilated location. Remove contaminated clothing immediately. Use only as directed. Refer to Section 8 for exposure controls.

**CONDITIONS FOR SAFE STORAGE:** Containers of this product must be properly labeled. Storage areas of this product should be clearly identified, well-illuminated, clear of obstruction and accessible only to trained and authorized personnel. Store containers in a clean, cool, well ventilated, dry location, away from direct sunlight, away from incompatible materials at temperatures between 50°F (10°C) - 100°F (37°C). Keep container tightly closed when not in use. P405: Store locked up. Do not ingest. Do not breathe vapor mist. Wash hands after handling. Refer to Section 10 for incompatibilities. P403+P233: Store in a well ventilated place. Keep container tightly closed.

## SECTION 8 - EXPOSURE CONTROLS - PERSONAL PROTECTION

**VENTILATION AND ENGINEERING CONTROLS:** Use with adequate ventilation. Eyewash/safety shower station is recommended to be available near where this product is used/stored.

### EXPOSURE LIMITS/GUIDELINES:

### EXPOSURE LIMITS IN AIR

CHEMICAL NAME	CAS#	ACGIH TLY		OSHA PEL	OTHER
		TWA	STEL	TWA	
MAGNESIUM NITRATE	10377-60-3	NE	NE	NE	NE
5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE	26172-55-4	NE	NE	NE	NE
2-METHYL-4-ISOTHIAZOLIN-3-ONE	2682-20-4	NE	NE	NE	NE
MAGNESIUM CHLORIDE	7786-30-3	NE	NE	NE	NE

NE = Not Established

**INGESTION:** P270: Do not eat, drink or smoke when using this product.

**RESPIRATORY PROTECTION:** P261: Avoid breathing dust/fume/gas/mist/vapours/spray. P271: Use only outdoors or in a well-ventilated area. Maintain airborne contaminant concentrations below guidelines listed above, if applicable. Air-purifying respirators with dust/mist/fume filters are recommended if operations may produce mists or sprays from this product.

**EYE PROTECTION:** Safety glasses or safety goggles. If splashing is anticipated, a face shield is recommended. P280: Wear protective gloves/protective clothing/eye protection/face protection.

**SKIN PROTECTION:** **HAND PROTECTION:** P264: Wash all exposed skin/hair thoroughly after handling. P280: Wear protective gloves/protective clothing/eye protection/face protection. Use chemically-resistant gloves when handling this product.  
**BODY PROTECTION:** Use body protection appropriate for task (e.g., lab coat, overalls, gloves).

**SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES**

APPEARANCE and COLOR:	Clear yellow/green liquid	VAPOR PRESSURE, mm Hg @ 20°C :	Not established
ODOR :	Pungent	VAPOR DENSITY (Air=1):	Not established
ODOR THRESHOLD:	Not established	RELATIVE DENSITY@20°C (water=1):	0.95 - 1.10
pH:	3.0 - 6.5	SOLUBILITY IN WATER:	Complete
MELTING/FREEZING POINT:	NA	PARTITION COEFFICIENT(n-octanol/water)	Not established
BOILING POINT:	100°C (212°F)	AUTOIGNITION TEMPERATURE:	Not applicable
FLASHPOINT:	Non-flammable	DECOMPOSITION TEMPERATURE:	Not established
EVAPORATION RATE (n-BuAc=1):	< 1	VISCOSITY:	Not established
FLAMMABILITY (SOLID/GAS):	Not applicable	VOLATILE ORGANIC COMPOUNDS (%):	None
FLAMMABLE LIMITS (in air by volume, %):	Not applicable		

**SECTION 10 - STABILITY AND REACTIVITY**

**REACTIVITY:** Product is not reactive under standard ambient temperature and pressure.

**STABILITY:** Stable under normal condition of use and storage.

**POSSIBILITY OF**

**HAZARDOUS REACTIONS:** None known.

**CONDITIONS TO AVOID:** See incompatible materials.

**INCOMPATIBLE MATERIALS:** Oxidizing agents, reducing agents, amines, mercaptans.

**HAZARDOUS**

**DECOMPOSITION PRODUCTS:** Thermal decomposition may yield the following: Hydrogen chloride, oxides of sulfur and nitrogen.

**SECTION 11 - TOXICOLOGICAL INFORMATION**

**TOXICOLOGICAL EFFECTS:** No data available for this product.

**LIKELY ROUTES OF EXPOSURE:** Skin/eye contact and inhalation. The most significant routes of overexposure for this product are by inhalation of mists or contact with skin or eyes.

**RELATED SYMPTOMS:** Skin, eye, respiratory and gastrointestinal irritation. May be harmful if swallowed.

**DELAYED/IMMEDIATE/CHRONIC EFFECTS FROM SHORT AND LONG TERM EXPOSURES:**

**ACUTE:** Contact with skin and eyes will cause burning and irritation. Do not wear contact lenses when using this product. Ingestion will cause gastric distress and possible depression of the central nervous system.

**CHRONIC:** Repeated or prolonged exposure to this product can produce target organ damage. Repeated exposure of the eyes can produce eye irritation. Repeated skin exposure can produce local skin destruction, or dermatitis. Repeated inhalation can produce varying degrees of respiratory irritation or lung damage.

**NUMERICAL MEASURES OF TOXICITY:**

Ceriodaphnia dubia (waterflea): 48hr, LC50s: 8.77 ppm

Ceriodaphnia dubia (waterflea): 96hr, LC50s: 7.88 ppm

Pimephales promelas (fathead minnow): 48hr, LC50s: 9.84 ppm

Pimephales promelas (fathead minnow): 96hr, LC50s: 9.56 ppm

**IRRITANCY OF PRODUCT:** This product is very irritating to skin, eyes and respiratory system.

**SENSITIZATION TO THE PRODUCT:** This product may cause allergic skin reactions (e.g., rashes, welts) in sensitive individuals.

**CARCINOGENICITY:** None of the components of this product are listed by the NTP, IARC, or regulated by OSHA as carcinogens.

**SECTION 12 - ECOLOGICAL INFORMATION****ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.**

**ECOTOXICITY:** Release of this product to the environment is expected to cause harm to plants and animals. If accidentally released, precautions must be taken to protect the environment.

**PERSISTENCE AND DEGRADABILITY:** Material is considered biodegradable.

**BIOLOGICAL ACCUMULATION POTENTIAL:** No data available for this product.

**MOBILITY IN SOIL:** No data available for this product.

**OTHER ADVERSE EFFECTS (i.e., hazardous to the ozone layer):** No data available for this product.

**Environmental Hazards:**

This pesticide is toxic to aquatic plants, fish and aquatic invertebrates. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA. Do not contaminate water by cleaning of equipment or disposal of waste. Apply this pesticide only as specified on the label.

**BIOLOGICAL EXPOSURE INDICES:** Currently, Biological Exposure Indices (BEIs) have not been determined for the components of this product.

### SECTION 13 - DISPOSAL CONSIDERATIONS

**DISPOSAL:** Thoroughly drain/empty containers and offer for recycling. Refer to Section 8 for exposure controls - personal protection. P501: Dispose of contents/container in accordance with local/regional/national/international regulations.

### SECTION 14 - TRANSPORTATION INFORMATION

#### PROPER SHIPPING NAME

**DOT:** UN3265, CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.  
(5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE), 8, PG II  
Emergency Response Guidebook, Guide No.: 153  
Passenger Aircraft Qty: 1L  
Cargo Aircraft Qty: 30L



**IMDG/IMO:** UN3265, CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.  
(5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE), 8, PG II

**IATA/ICAO:** UN3265, CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.  
(5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE), 8, PG II

#### ENVIRONMENTAL HAZARDS

(i.e., **MARINE POLLUTANT**): None known.

**TRANSPORT IN BULK (according to annex II marpol 73/78 and the IBC code):** Not applicable.

**SPECIAL PRECAUTIONS FOR USER:** None known.

PRODUCT REQUIRES CORROSIVE LABEL

### SECTION 15 - REGULATORY INFORMATION

#### United States and International Regulations

**United States Regulations: U.S. SARA REPORTING REQUIREMENTS:** The components of this product are subject to the reporting as listed below, requirements of Sections 302, 304, and 313 of Title of the Superfund Amendments and Reauthorization Act:

#### CHEMICAL NAME

MAGNESIUM NITRATE	SARA 302 (40 CFR 355, Appendix A) - NO SARA 304 (40 CFR Table 302.4) - NO SARA 313 (40 CFR 372.65) - YES
5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE	SARA 302 (40 CFR 355, Appendix A) - NO SARA 304 (40 CFR Table 302.4) - NO SARA 313 (40 CFR 372.65) - NO
2-METHYL-4-ISOTHIAZOLIN-3-ONE	SARA 302 (40 CFR 355, Appendix A) - NO SARA 304 (40 CFR Table 302.4) - NO SARA 313 (40 CFR 372.65) - NO
MAGNESIUM CHLORIDE	SARA 302 (40 CFR 355, Appendix A) - NO SARA 304 (40 CFR Table 302.4) - NO SARA 313 (40 CFR 372.65) - NO

#### U.S. Regulations

**U.S. SARA THRESHOLD PLANNING QUANTITY:** There are no specific Threshold Planning Quantities for the components of this product. The default Federal SDS submission and inventory requirement filing threshold of 10,000 lbs (4,540 kg) therefore applies, per 40 CFR 370.20.  
**U.S. CERCLA REPORTABLE QUANTITY (RQ):** Not listed.

**TSCA INVENTORY STATUS:** The components of this product are listed on the TSCA Inventory.

**SARA TITLE III Section 311/312 Hazard Category:** Acute: YES; Chronic: NO; Fire: NO; Reactive: NO; Sudden Release of Pressure: NO

#### FIFRA Information

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

**DANGER, CORROSIVE.** Causes irreversible eye damage and skin burns. May cause allergic skin reaction. Harmful if swallowed or absorbed through the skin. Harmful if inhaled.

Do not get in eyes, on skin, or on clothing. Prolonged or frequently repeated skin contact may cause allergic reaction in some individuals. Remove contaminated clothing and wash clothing before reuse. Mixers, loaders and others exposed to this product must wear: long-sleeved shirt and long pants; chemical resistant gloves such as nitrile or butyl rubber; shoes plus socks; goggles and face shield; and chemical resistant apron. Discard clothing or other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry. Users should wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Users should remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Users should remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly.

**California Safe Drinking Water and Toxic Enforcement Act (Proposition 65):** No component of this product is on the Proposition 65 list.

**International Regulations**

CANADIAN REGULATIONS:

CANADIAN DSL/NDL INVENTORY STATUS: The components of this product are on the DSL Inventories or are exempt from listing.

CANADIAN WHMIS CLASSIFICATION: Not classified.

**SECTION 16 - OTHER INFORMATION**

**PREPARED BY:** GARRATT CALLAHAN

**DATE OF REVISION:** 2/11/2016 Supercedes: 6/16/2015

Formula 315 is EPA-registered; with EPA Reg. No. 8540-23. Refer to the approved label for details.

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user's intended purpose or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose.



# GC FORMULA 314-T



**SAFETY DATA SHEET**

**SECTION 1 - PRODUCT IDENTIFICATION**

PRODUCT NAME:	FORMULA 314-T
PRODUCT USE:	BIOCIDE
RESTRICTIONS ON USE:	Refer to label, available technical information, and other appropriate sections of this SDS.
UN NUMBER:	1479
PROPER SHIPPING NAME:	OXIDIZING SOLID, N.O.S. (1-BROMO-3-CHLORO-5,5-DIMETHYLHYDANTOIN), 5.1, PGII,
MANUFACTURER'S NAME:	Garratt-Callahan Company
ADDRESS:	50 Ingold Road, Burlingame, CA 94010-2206
EMERGENCY PHONE:	<b>North America: CHEMTREC: 1-800-424-9300</b> <b>Outside North America: +1-703-527-3887</b>
BUSINESS PHONE:	Product Information: 650-697-5811
SDS NUMBER:	SD3314
DATE OF REVISION:	6/11/2015

**SECTION 2 - HAZARDS IDENTIFICATION**

**SIGNAL WORD:** DANGER

**HAZARD STATEMENT:**

H270: May cause or intensify fire; oxidizer. 1  
 H302: Harmful if swallowed. 4  
 H314: Causes severe skin burns and eye damage. 1A  
 H335: May cause respiratory irritation. 3



**PRECAUTIONARY STATEMENTS: (PREVENTION)**

P101: If medical advice is needed, have product container or label at hand.  
 P102: Keep out of reach of children.  
 P103: Read label before use.  
 P220: Keep/Store away from clothing/combustible materials.  
 P244: Keep reduction valves free from grease and oil.  
 P260: Do not breathe dust/fume/gas/mist/vapours/spray.  
 P264: Wash all exposed skin/hair thoroughly after handling.  
 P270: Do not eat, drink or smoke when using this product.  
 P271: Use only outdoors or in a well-ventilated area.  
 P280: Wear protective gloves/protective clothing/eye protection/face protection.

**HAZARDOUS MATERIAL IDENTIFICATION SYSTEM**

HEALTH HAZARD (BLUE)	3
FLAMMABILITY HAZARD (RED)	0
REACTIVITY HAZARD (YELLOW)	1

Hazard Scale  
 0=Minimal  
 1=Slight  
 2=Moderate  
 3=Serious  
 4=Severe  
 \*=Chronic hazard

**NFPA RATING  
 FLAMMABILITY**



**SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS**

<b>Hazardous Ingredients</b>	<b>CAS#</b>	<b>EC#</b>	<b>ICSC#</b>	<b>WT %</b>
I-BROMO-3-CHLORO-5,5-DIMETHYL-HYDANTOIN	16079-88-2	240-230-0	NE	60 - 100

**SECTION 4 - FIRST AID MEASURES**

Exposed individuals must be taken for medical attention if any adverse effect occurs. Take a copy of this SDS to the health professional with the individual. P310: Immediately call a POISON CENTER or doctor/physician.

**DANGER:** Harmful if swallowed. Causes severe skin burns and eye damage. May cause respiratory irritation. Also refer to Section 11 for symptoms, effects, and likely routes of exposure for this product.

**TARGET ORGANS:**

**ACUTE:** irritation of skin, eyes, respiratory and gastrointestinal systems.

**CHRONIC:** irritation of skin, eyes, respiratory and gastrointestinal systems.

**SKIN EXPOSURE:** P303+P361+P353: IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower. Minimum flushing time is for 15 minutes. Remove exposed or contaminated clothing, taking care not to contaminate the eyes. P363: Wash contaminated clothing before reuse. P310: Immediately call a POISON CENTER or doctor/physician.

**EYE EXPOSURE:** P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing. Use sufficient force to open the eyelids. Have the exposed individual "roll" their eyes. Minimum flushing time is for 15 minutes. P310: Immediately call a POISON CENTER or doctor/physician.

**INHALATION:** P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P312: Call a POISON CENTER or doctor/physician if you feel unwell.

**INGESTION:** P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P301+312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Never induce vomiting or give diluents (milk or water) by mouth to someone who is unconscious, having convulsions, or unable to swallow. P310: Immediately call a POISON CENTER or doctor/physician.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Skin and respiratory disorders, as well as conditions involving the "Target Organs" may be aggravated by prolonged exposures to this product. Exposed individual must seek immediate medical attention if any adverse effect occurs.

**NOTES TO PHYSICIAN:** Treat symptoms as demonstrated by signs and distress in the patient.

**SECTION 5 - FIRE FIGHTING MEASURES****SUITABLE (AND UNSUITABLE) EXTINGUISHING MATERIALS:**

Product is non-flammable. Water spray, fog or mist. Alcohol resistant foam. Do not use ammonium phosphate (ABC), other dry chemical extinguishers or CO<sub>2</sub>. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**SPECIFIC HAZARDS ARISING FROM THE CHEMICAL:**

Oxidizing material. Forms explosive mixtures with combustible organic or other easily oxidizable materials. May release hydrogen bromide or bromine gas, nitrogen oxides, hydrogen chloride when wet. Fire causes formation of toxic gases, vapors of bromine, chlorine, oxides of nitrogen and/or carbon.

**SPECIAL PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIREFIGHTERS:**

Firefighters should wear fully protective clothing (chemical impermeable, fully encapsulated suit) and positive pressure self-contained breathing apparatus. Do not release run off from fire control methods to sewer or waterways. P370+P376: In case of fire: Stop leak if safe to do so.

**SECTION 6 - ACCIDENTAL RELEASE MEASURES**

**PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT, ENVIRONMENTAL PRECAUTIONS AND EMERGENCY PROCEDURES.**

**WARNING:** Any container expansion or rounding indicates pressure build-up. Use extreme caution. When opening, release pressure slowly through opening.

**SPILL AND LEAK RESPONSE:** Uncontrolled releases should be responded to by appropriately trained personnel using pre-planned procedures. Proper protective equipment should be used, refer to Section 8 - exposure controls.

**Small Spill:** Mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. P391: Collect spillage.

**Large Spill:** Restrict access to the area. Provide adequate protective equipment and ventilation. Stop leak if without risk. Remove chemicals which can react with the spilled material. Add dry inert material to contain and absorb spilled material. Prevent entry into surface waters, sewers, basements or confined areas, dike if needed. Avoid generation of dust. Avoid contact with water. Ensure that exposure to product is not at a concentration exceeding regulatory limits. Decontaminate the area thoroughly. Decontaminate all response equipment with soapy water before returning to service. Place all spill residue in a suitable container and seal. P391: Collect spillage.

**SECTION 7 - HANDLING AND STORAGE**

**PRECAUTIONS FOR SAFE HANDLING:** Keep out of reach of children. All employees who handle this material should be trained to handle it safely. Open containers slowly on a stable surface. As with all chemicals, avoid getting this product ON YOU or IN YOU. Avoid direct or prolonged contact with skin or eyes. Do not ingest. Wash thoroughly after handling this product. Do not eat, drink, smoke, or apply cosmetics while handling this product. Avoid breathing vapors, dusts or mists generated by this product. Use in a well-ventilated location. Remove contaminated clothing immediately. Use only as directed. Refer to Section 8 for exposure controls.

**CONDITIONS FOR SAFE STORAGE:** Containers of this product must be properly labeled. Storage areas of this product should be clearly identified, well-illuminated, clear of obstruction and accessible only to trained and authorized personnel. Store containers in a clean, cool, well ventilated, dry location, away from direct sunlight, away from incompatible materials at temperatures between 50°F (10°C) - 100°F (37°C). Keep container tightly closed when not in use. Avoid spilling, skin and eye contact. Avoid contact with acids, moisture or combustible materials. Keep away from heat, sparks and open flames. P405: Store locked up. Do not ingest. Do not breathe vapor mist. Wash hands after handling. Refer to Section 10 for incompatibilities. P403+P233: Store in a well ventilated place. Keep container tightly closed.

**SECTION 8 - EXPOSURE CONTROLS - PERSONAL PROTECTION**

**VENTILATION AND ENGINEERING CONTROLS:** Use with adequate ventilation. Eyewash/safety shower station is recommended to be available near where this product is used/stored.

**EXPOSURE LIMITS/GUIDELINES:**

**EXPOSURE LIMITS IN AIR**

CHEMICAL NAME	CAS#	ACGIH TLV		OSHA PEL	OTHER
		TWA	STEL	TWA	
I-BROMO-3-CHLORO-5,5-DIMETHYL-HYDANTOIN	16079-88-2	NE	NE	NE	N/A

NE = Not Established

**INGESTION:** P264: Wash all exposed skin/hair thoroughly after handling. P270: Do not eat, drink or smoke when using this product.

**RESPIRATORY PROTECTION:** P260: Do not breathe dust/fume/gas/mist/vapours/spray. P271: Use only outdoors or in a well-ventilated area. Maintain airborne contaminant concentrations below guidelines listed above, if applicable. Air-purifying respirators with dust/mist/fume/spray filters are recommended if operations may produce dusts, mists or sprays from this product with concentrations at or above levels posted above.

**EYE PROTECTION:** P264: Wash all exposed skin/hair thoroughly after handling. P280: Wear protective gloves/protective clothing/eye protection/face protection. Wear chemical safety goggles or safety glasses with side shields. A face shield may also be necessary for splash protection.

**SKIN PROTECTION:** P260: Do not breathe dust/fume/gas/mist/vapours/spray. P264: Wash all exposed skin/hair thoroughly after handling. P280: Wear protective gloves/protective clothing/eye protection/face protection. Use chemically-resistant gloves and skin protection, when handling this product. Use body protection appropriate for task (e.g., lab coat, overalls).



**SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES**

APPEARANCE and COLOR:	White to off-white tablet	VAPOR PRESSURE, mm Hg @ 20°C :	Not applicable
ODOR :	Slight odor Halogen	VAPOR DENSITY (Air=1):	Not applicable
ODOR THRESHOLD:	Not established	RELATIVE DENSITY@20°C (water=1):	0.96
pH:	3.5 @ 0.15%	SOLUBILITY IN WATER:	Low (0.15g/100g H <sub>2</sub> O @ 20°C)
MELTING/FREEZING POINT:	145-160°C	PARTITION COEFFICIENT(n-octanol/water):	Not established
BOILING POINT:	Not applicable	AUTOIGNITION TEMPERATURE:	Not established
FLASHPOINT:	Not established	DECOMPOSITION TEMPERATURE:	Not established
EVAPORATION RATE (n-BuAc=1):	Not applicable	VISCOSITY:	Not applicable
FLAMMABILITY (SOLID/GAS):	Not established	VOLATILE ORGANIC COMPOUNDS (%):	None
FLAMMABLE LIMITS (in air by volume, %):	Not established		

**SECTION 10 - STABILITY AND REACTIVITY**

**REACTIVITY:** Product is not reactive under standard ambient temperature and pressure. Avoid moisture.

**STABILITY:** Stable under normal condition of use and storage. Avoid moisture.

**POSSIBILITY OF**

**HAZARDOUS REACTIONS:** None known.

**CONDITIONS TO AVOID:** Avoid contact with oxidizers or reducing agents. Avoid contact with acids and alkalis. Avoid heat, flames and other sources of ignition. Avoid moisture.

**INCOMPATIBLE MATERIALS:** Strong acids, strong alkalis, strong oxides, strong reducing agents.

**HAZARDOUS**

**DECOMPOSITION PRODUCTS:** Toxic gases/vapors/fumes of: Hydrogen bromide, Bromine, Hydrogen chloride, Chlorine, oxides of Carbon, Nitrogen.

**SECTION 11 - TOXICOLOGICAL INFORMATION**

**TOXICOLOGICAL EFFECTS:** Oral: LD50: rats, 578 mg/kg  
Dermal: LD50: rabbits, 2000mg/kg  
Ames test: Negative

**LIKELY ROUTES OF EXPOSURE:** Skin/eye contact and inhalation.

**RELATED SYMPTOMS:** Skin, eye, respiratory and gastrointestinal irritation. Harmful or burns if swallowed.

**DELAYED/IMMEDIATE/CHRONIC EFFECTS FROM SHORT AND**

**LONG TERM EXPOSURES:** Skin, eye, respiratory and gastrointestinal irritation. Harmful or burns if swallowed.

**NUMERICAL MEASURES OF**

**TOXICITY:** Not established for this product.

**CARCINOGENICITY:** None of the components of this product are listed by the NTP, IARC, or regulated by OSHA as carcinogens.

**SECTION 12 - ECOLOGICAL INFORMATION**

**ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.**

**ECOTOXICITY:**

Fish: LC50: 96 hr = 0.87 mg/l

Daphnia: LC50: 48 hr = 0.46 mg/l

Acute Toxicity : LC50: 96hours, 640 mg/l American Oyster

Chemical oxygen demand: 1.005 g/g.

**PERSISTENCE AND DEGRADABILITY:** No data available for this product.

**BIOLOGICAL ACCUMULATION POTENTIAL:** Material is expected to present a low bioaccumulation potential.

**MOBILITY IN SOIL:** No data available for this product.

**OTHER ADVERSE EFFECTS (i.e., hazardous to the ozone layer):** No data available for this product.

**Environmental Hazards:**

This pesticide is toxic to fish and aquatic organisms. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product into sewer systems without previously notifying the local sewage treatment plant authority. For guidance, contact your State Water Board or Regional Office of the EPA.

**BIOLOGICAL EXPOSURE INDICES:** Currently, Biological Exposure Indices (BEIs) have not been determined for this product.

**SECTION 13 - DISPOSAL CONSIDERATIONS**

**DISPOSAL:** P501: Dispose of contents/container in accordance with local/regional/national/international regulations. Rinse empty containers with water and use the rinse water to prepare the working solution. Refer to Section 8 for exposure controls - personal protection.

**SECTION 14 - TRANSPORTATION INFORMATION****PROPER SHIPPING NAME**

**DOT:** UN1479, OXIDIZING SOLID, N.O.S. (I-BROMO-3-CHLORO-5,5-DIMETHYLHYDANTOIN), 5.1, PGII,  
Emergency Response Guidebook, Guide No.: 140  
Passenger Aircraft Qty: 5kg  
Cargo Aircraft Qty: 25kg

**IMDG/IMO:** UN1479, OXIDIZING SOLID, N.O.S. (I-BROMO-3-CHLORO-5,5-DIMETHYLHYDANTOIN), 5.1, PGII,

**IATA/ICAO:** UN1479, OXIDIZING SOLID, N.O.S. (I-BROMO-3-CHLORO-5,5-DIMETHYLHYDANTOIN), 5.1, PGII,

**ENVIRONMENTAL HAZARDS**

(i.e., **MARINE POLLUTANT**): None known.

**TRANSPORT IN BULK (according to annex II marpol 73/78 and the IBC code):** Not applicable.

**SPECIAL PRECAUTIONS FOR USER:** None known.

PRODUCT REQUIRES OXIDIZER LABEL

**SECTION 15 - REGULATORY INFORMATION****United States and International Regulations**

**United States Regulations: U.S. SARA REPORTING REQUIREMENTS:** The components of this product are subject to the reporting as listed below, requirements of Sections 302, 304, and 313 of Title of the Superfund Amendments and Reauthorization Act:

**CHEMICAL NAME**

I-BROMO-3-CHLORO-5,5-DIMETHYLHYDANTOIN	SARA 302 (40CFR 355, APPENDIX A) - NO
	SARA 304 (40CFR TABLE 302.4) - NO
	SARA 313 (40CFR 372.65) - NO

**U.S. Regulations**

**U.S. SARA THRESHOLD PLANNING QUANTITY:** There are no specific Threshold Planning Quantities for the components of this product. The default Federal SDS submission and inventory requirement filing threshold of 10,000 lbs (4,540 kg) therefore applies, per 40 CFR 370.20.

**U.S. CERCLA REPORTABLE QUANTITY (RQ):** Not listed.

**U.S. TSCA INVENTORY STATUS:** The components of this product are listed on the TSCA Inventory.

**SARA TITLE 311/312 HAZARD CATEGORY:** ACUTE: YES CHRONIC: NO FIRE: YES REACTIVITY: NO PRESSURE: NO

**California Safe Drinking Water and Toxic Enforcement Act (proposition 65):** No component of this product is on the Proposition 65 list.

**FIFRA Information:**

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

**DANGER. CORROSIVE.** Causes irreversible eye damage and skin burns. Harmful if swallowed. Irritating to nose and throat. Do not get in eyes, on skin, or on clothing. Wear protective eyewear (goggles, face shield, or safety glasses). Wear protective clothing and rubber gloves when handling this product. Avoid breathing dust and fumes. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash clothing before reuse.

**International Regulations****CANADIAN REGULATIONS:**

**CANADIAN DSL/NDL INVENTORY STATUS:** The components of this product are on the DSL or NDSL Inventories or are exempt from listing.  
**CANADIAN WHMIS CLASSIFICATION:** Not listed.

**SECTION 16 - OTHER INFORMATION****PREPARED BY: GARRATT CALLAHAN****DATE OF REVISION:** 6/11/2015      **Supercedes:** 11/7/2014

Formula 314-T is EPA-registered; with EPA Reg. No. 83451-4-8540. Refer to the approved label for details.

Formula 314-T is registered with the NSF to the NSF International Registration Guidelines for Proprietary Substances and Nonfood Compounds for category codes G5, G7; with NSF Reg. No. 113139.

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user's intended purpose or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose.

# FORMULA 2011





**SAFETY DATA SHEET**

**SECTION 1 - PRODUCT IDENTIFICATION**

PRODUCT NAME: FORMULA 2011-LT  
 PRODUCT USE: COOLING WATER TREATMENT  
 RESTRICTIONS ON USE: Refer to label, available technical information, and other appropriate sections of this SDS.  
 UN NUMBER: NOT REGULATED  
 PROPER SHIPPING NAME: NOT REGULATED  
 MANUFACTURER'S NAME: Garratt-Callahan Company  
 ADDRESS: 50 Ingold Road, Burlingame, CA 94010-2206  
 EMERGENCY PHONE: North America: CHEMTREC: 1-800-424-9300  
 Outside North America: +1-703-527-3887  
 BUSINESS PHONE: Product Information: 650-697-5811  
 SDS NUMBER: SD2011LT  
 DATE OF REVISION: 5/17/2018

**SECTION 2 - HAZARDS IDENTIFICATION**

**SIGNAL WORD:** WARNING

**HAZARD STATEMENT:**

- H290: May be corrosive to metals. 1
- H303: May be harmful if swallowed.
- H316: Causes mild skin irritation. 3
- H320: Causes eye irritation. 2B
- H333: May be harmful if inhaled. 5
- H413: May cause long lasting harmful effects to aquatic life. 4

**PRECAUTIONARY STATEMENTS: (PREVENTION)**

- P101: If medical advice is needed, have product container or label at hand.
- P102: Keep out of reach of children.
- P103: Read label before use.
- P234: Keep only in original packaging.
- P264: Wash all exposed skin/hair thoroughly after handling.
- P273: Avoid release to the environment.

**HAZARDOUS MATERIAL IDENTIFICATION SYSTEM**

HEALTH HAZARD (BLUE)	1	Hazard Scale 0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe *=Chronic hazard
FLAMMABILITY HAZARD (RED)	0	
PHYSICAL HAZARD (YELLOW)	0	
PERSONAL PROTECTION		

**NFPA RATING  
FLAMMABILITY**



**SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS**

<u>Hazardous Ingredients</u>	<u>CAS#</u>	<u>EC#</u>	<u>ICSC#</u>	<u>WT %</u>
PHOSPHONOBUTANE TRICARBOXYLIC ACID	37971-36-1	253-733-5	NE	< 3
BENZOTRIAZOLE	95-14-7	202-394-1	1091	< 3
PHOSPHINOCARBOXYLIC ACID	71050-62-9	NA	NA	< 3

**SECTION 4 - FIRST AID MEASURES**

Exposed individuals must be taken for medical attention if any adverse effect occurs. Take a copy of this SDS to the health professional with the individual.

**WARNING:** May be corrosive to metals. May be harmful if swallowed. Causes mild skin irritation. Causes eye irritation. May be harmful if inhaled. May cause long lasting harmful effects to aquatic life. Also refer to Section 11 for symptoms, effects, and likely routes of exposure for this product.

**TARGET ORGANS:**

ACUTE: irritation of skin, eyes, respiratory and gastrointestinal systems.

CHRONIC: irritation of skin, eyes, respiratory and gastrointestinal systems.

**SKIN EXPOSURE:** IF ON SKIN: Wash with soap and water. Minimum rinsing time is for 15 minutes. Take off contaminated clothing and wash before reuse. P332+P313: If skin irritation occurs: Get medical advice/attention.

**EYE EXPOSURE:** P305+P351+P338: IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing. Use sufficient force to open the eyelids. Have the exposed individual "roll" their eyes. Minimum rinsing time is for 15 minutes. P337+P313: If eye irritation persists: Get medical advice/attention.

**INHALATION:** P304+P312: IF INHALED: Call a POISON CENTER/doctor/ if you feel unwell.

**INGESTION: IF SWALLOWED:** P301+P312: IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell. Rinse mouth. Do NOT induce vomiting. Never induce vomiting or give diluents (milk or water) by mouth to someone who is unconscious, having convulsions, or unable to swallow.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Skin and respiratory disorders, as well as conditions involving the "Target Organs" may be aggravated by prolonged exposures to this product. Exposed individual must seek immediate medical attention if any adverse effect occurs.

**NOTES TO PHYSICIAN:** Treat symptoms as demonstrated by signs and distress in the patient.

**SECTION 5 - FIRE FIGHTING MEASURES**

**SUITABLE (AND UNSUITABLE) EXTINGUISHING MATERIALS:** Use media appropriate for the surrounding fire.

**SPECIFIC HAZARDS ARISING FROM THE CHEMICAL:** No unusual hazards

**SPECIAL PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIREFIGHTERS:** Firefighters should wear fully protective clothing (chemical impermeable, fully encapsulated suit) and positive pressure self-contained breathing apparatus. Do not release run off from fire control methods to sewer or waterways.

**SECTION 6 - ACCIDENTAL RELEASE MEASURES****PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT, ENVIRONMENTAL PRECAUTIONS AND EMERGENCY PROCEDURES.**

**WARNING:** Any container expansion or rounding indicates pressure build-up. Use extreme caution. When opening, release pressure slowly through opening.

**SPILL AND LEAK RESPONSE:** Uncontrolled releases should be responded to by appropriately trained personnel using pre-planned procedures. Proper protective equipment should be used, refer to Section 8 - exposure controls. P391: Collect spillage. P273: Avoid release to the environment. P390: Absorb spillage to prevent material-damage.

**Small Spill:** Mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

**Large Spill:** Restrict access to the area. Provide adequate protective equipment and ventilation. Stop leak if without risk. Remove chemicals which can react with the spilled material. Prevent entry into surface waters, sewers, basements or confined areas, dike if needed. Ensure that exposure to product is not at a concentration exceeding regulatory limits. Decontaminate the area thoroughly. Decontaminate all response equipment with soapy water before returning to service. Place all spill residue in a suitable container and seal.

**SECTION 7 - HANDLING AND STORAGE**

**PRECAUTIONS FOR SAFE HANDLING:** Keep out of reach of children. All employees who handle this material should be trained to handle it safely. Open containers slowly on a stable surface. As with all chemicals, avoid getting this product ON YOU or IN YOU. Avoid direct or prolonged contact with skin or eyes. Do not ingest. Wash thoroughly after handling this product. Do not eat, drink, smoke, or apply cosmetics while handling this product. Avoid breathing vapors, dusts or mists generated by this product. Use in a well-ventilated location. Remove contaminated clothing immediately. Use only as directed. Refer to Section 8 for exposure controls. P273: Avoid release to the environment.

**CONDITIONS FOR SAFE STORAGE:** Containers of this product must be properly labeled. Storage areas of this product should be clearly identified, well-illuminated, clear of obstruction and accessible only to trained and authorized personnel. Store containers in a clean, cool, well ventilated, dry location, away from direct sunlight, away from incompatible materials at temperatures between 50°F (10°C) - 100°F (37°C). Keep container tightly closed when not in use. P405: Store locked up. Do not ingest. Do not breathe vapor mist. Wash hands after handling. Refer to Section 10 for incompatibilities. P234: Keep only in original packaging. P406: Store in corrosion resistant container with a resistant inner liner.

**SECTION 8 - EXPOSURE CONTROLS - PERSONAL PROTECTION**

**VENTILATION AND ENGINEERING CONTROLS:** Use with adequate ventilation. Eyewash/safety shower station is recommended to be available near where this product is used/stored.

**EXPOSURE LIMITS/GUIDELINES:****EXPOSURE LIMITS IN AIR**

<u>CHEMICAL NAME</u>	<u>CAS#</u>	<u>ACGIH TLV</u>		<u>OSHA PEL</u>	<u>OTHER</u>
		<u>TWA</u>	<u>STEL</u>	<u>TWA</u>	
PHOSPHONOBUTANE TRICARBOXYLIC ACID	37971-36-1	NE	NE	NE	N/A
BENZOTRIAZOLE	95-14-7	NE	NE	NE	N/A
PHOSPHINOCARBOXYLIC ACID	71050-62-9	NE	NE	NE	N/A

NE = Not Established

**INGESTION:** Do not eat, drink, smoke, or apply cosmetics when handling this product. Wash all exposed skin/hair thoroughly after handling.

**RESPIRATORY PROTECTION:** Avoid breathing dust/fume/gas/mist/vapours/spray. Use only outdoors or in a well ventilated area. Maintain airborne contaminant concentrations below guidelines listed above, if applicable. Air-purifying respirators with dust/mist/fume/spray filters are recommended if operations may produce dusts, mists or sprays from this product with concentrations at or above levels posted above.

**EYE PROTECTION:** P264: Wash all exposed skin/hair thoroughly after handling. Wear chemical safety goggles or safety glasses with side shields. A face shield may also be necessary for splash protection.

**SKIN PROTECTION:** Wash all exposed skin/hair thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection. Use chemically-resistant gloves and skin protection, when handling this product. Use body protection appropriate for task (e.g., lab coat, overalls).

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FORMULA 2011-LT

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**SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES**

APPEARANCE and COLOR:	Clear yellow liquid	VAPOR PRESSURE, mm Hg @ 20°C:	Not determined
ODOR :	Odorless	VAPOR DENSITY (Air=1):	Not determined
ODOR THRESHOLD:	Not established	RELATIVE DENSITY@20°C (water=1):	1.11 - 1.13
pH:	2.0 - 4.0	SOLUBILITY IN WATER:	Complete
MELTING/FREEZING POINT:	NA	PARTITION COEFFICIENT(n-octanol/water):	Not established
BOILING POINT:	> 212 °F (100 °C)	AUTOIGNITION TEMPERATURE:	Not established
FLASHPOINT:	Non-flammable	DECOMPOSITION TEMPERATURE:	Not established
EVAPORATION RATE (n-BuAc=1):	Not established	VISCOSITY:	Not established
FLAMMABILITY (SOLID/GAS):	Not established	VOLATILE ORGANIC COMPOUNDS (%):	Not established
FLAMMABLE LIMITS (in air by volume, %):	Not established		

**SECTION 10 - STABILITY AND REACTIVITY**

<b>REACTIVITY:</b>	Not established.
<b>STABILITY:</b>	Stable under normal condition of use and storage.
<b>POSSIBILITY OF HAZARDOUS REACTIONS:</b>	Will not occur.
<b>CONDITIONS TO AVOID:</b>	Not established.
<b>INCOMPATIBLE MATERIALS:</b>	Strong bases.
<b>HAZARDOUS DECOMPOSITION PRODUCTS:</b>	When heated to decomposition, product may emit toxic fumes of oxides of carbon, nitrogen, phosphorous and sulfur.

**SECTION 11 - TOXICOLOGICAL INFORMATION**

<b>TOXICOLOGICAL EFFECTS:</b>	No data available for this product.
<b>LIKELY ROUTES OF EXPOSURE:</b>	Skin, eye contact and inhalation.
<b>RELATED SYMPTOMS:</b>	Skin, eye, respiratory and gastrointestinal irritation. May be harmful if swallowed.
<b>DELAYED/IMMEDIATE/CHRONIC EFFECTS FROM SHORT AND LONG TERM EXPOSURES:</b>	Skin, eye, respiratory and gastrointestinal irritation. May be harmful if swallowed.
<b>NUMERICAL MEASURES OF TOXICITY:</b>	Not established for this product.

**CARCINOGENICITY:** None of the components of this product are listed by the NTP, IARC, or regulated by OSHA AS carcinogens.

**SECTION 12 - ECOLOGICAL INFORMATION**

<b>ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.</b>
<b>ECOTOXICITY:</b> Water Flea 48 hr LC50: 7071 ppm Fathead Minnow 96 hr LC50: 5359 ppm
<b>PERSISTENCE AND DEGRADABILITY:</b> No data available for this product.
<b>BIOLOGICAL ACCUMULATION POTENTIAL:</b> No data available for this product.
<b>MOBILITY IN SOIL:</b> No data available for this product.
<b>OTHER ADVERSE EFFECTS (i.e., hazardous to the ozone layer):</b> No data available for this product.
<b>BIOLOGICAL EXPOSURE INDICES:</b> Currently, Biological Exposure Indices (BEIs) have not been determined for the components of this product.

**SECTION 13 - DISPOSAL CONSIDERATIONS**

**DISPOSAL:** Thoroughly drain/empty containers and offer for recycling. Refer to Section 8 for exposure controls - personal protection, P501: Dispose of contents/container in accordance with local/regional/national/international regulations.

# **ATTACHMENT 8**

## **Editorial Corrections to the NPDES-FS-18-008-R1, Outfall 04A022 Fact Sheet**

**EPC-DO: 19-299**

**LA-UR-19-28240**

**Date:**                     **AUG 19 2019**



# **Industrial and Sanitary Outfalls 2019 NPDES Permit Re-Application Outfall 04A022 Fact Sheet**

Science and Technology Operations (STO)  
TA-3-66 Cooling Water and Roof Drains



## Revision Log

<u>Revision No.</u>	<u>Date</u>	<u>Page Nos.</u>	<u>Change Description</u>
<u>0</u>	<u>3/19/2019</u>	<u>NA</u>	<u>Original</u>
<u>1</u>	<u>7/31/2019</u>	<u>Attachment D, page D-5</u>	<u>Revised Gross Alpha to "Adjusted Gross Alpha."</u>
		<u>Attachment E, page E-4</u>	<u>Replaced the MSDS for Formula 2011 with the current SDS.</u>
		<u>Attachment E, page E-10</u>	<u>Replaced the MSDS for GC Formula 314-T with the current SDS.</u>
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

OUTFALL No.	TA - Bldg.	Year	Monitoring Period	Parameter	Quantity or Loading			Quality or Concentration							Notes	
					Average	Maximum	Units	Minimum	Average	Maximum	Units	Permit Limit	Units	Number of Samples		Frequency
04A022	TA3-66	2016	Mar	Total Suspended Solids				****	1.8	1.8	mg/L	30 - 100	mg/L	1	Quarterly	Required by Permit
04A022	TA3-66	2016	Jun	Total Suspended Solids				****	<0.57	<0.57	mg/L	30 - 100	mg/L	1	Quarterly	Required by Permit
04A022	TA3-66	2016	Sept	Total Suspended Solids				****	<5.7	<5.7	mg/L	30 - 100	mg/L	1	Quarterly	Required by Permit
04A022	TA3-66	2016	Dec	Total Suspended Solids				****	<0.826	<0.826	mg/L	30 - 100	mg/L	1	Quarterly	Required by Permit
04A022	TA3-66	2017	Mar	Total Suspended Solids				****	13.4	13.4	mg/L	30 - 100	mg/L	1	Quarterly	Required by Permit
04A022	TA3-66	2017	Jun	Total Suspended Solids				****	4.22	4.22	mg/L	30 - 100	mg/L	1	Quarterly	Required by Permit
04A022	TA3-66	2017	Sept	Total Suspended Solids				****	<0.604	<0.638	mg/L	30 - 100	mg/L	2	Quarterly	Required by Permit
04A022	TA3-66	2017	Dec	Total Suspended Solids				****	<0.57	<0.57	mg/L	30 - 100	mg/L	1	Quarterly	Required by Permit
04A022	TA3-66	2018	Mar	Total Suspended Solids				****	2.8	2.8	mg/L	30 - 100	mg/L	1	Quarterly	Required by Permit
04A022	TA3-66	2018	Jun	Total Suspended Solids				****	<0.57	<0.57	mg/L	30 - 100	mg/L	1	Quarterly	Required by Permit
04A022	TA3-66	2018	Sept	Total Suspended Solids				****	<0.57	<0.57	mg/L	30 - 100	mg/L	1	Quarterly	Required by Permit
<b>Total Suspended Solids</b>					Daily Average				3.6					18		
<b>Total Suspended Solids</b>					Maximum 30 Day Average				13.4					18		
<b>Total Suspended Solids</b>					Daily Maximum				<0.015	<0.015	mg/L	NA	NA	1	Term	Required by Permit
04A022	TA3-66	2016	Sept	Aluminum, Total				****						1		
<b>Aluminum, Total</b>					Daily Average				0					1		
<b>Aluminum, Total</b>					Maximum 30 Day Average				0					1		
<b>Aluminum, Total</b>					Daily Maximum				0					1		
04A022	TA3-66	2015	Sept	Copper, Dissolved				****	0.01310	0.01310	mg/L	NA	NA	1	Term	Required by Permit
04A022	TA3-66	2016	Sept	Copper, Dissolved				****	****	****	mg/L	NA	NA	0	Term	NA
04A022	TA3-66	2017	Sept	Copper, Dissolved				****	0.05650	0.10000	mg/L	NA	NA	2	Term	NA
04A022	TA3-66	2018	Sept	Copper, Dissolved				****	****	****	mg/L	NA	NA	0	Term	NA
<b>Copper, Dissolved</b>					Daily Average				0.0348					0		
<b>Copper, Dissolved</b>					Maximum 30 Day Average				0.05650					0		
<b>Copper, Dissolved</b>					Daily Maximum				0.10000					0		
04A022	TA3-66	2016	Sept	Adjusted Gross Alpha				****	0	0	pCi/L	NA	NA	1	Term	Required by Permit
<b>Adjusted Gross Alpha</b>					Daily Average				0					1		
<b>Adjusted Gross Alpha</b>					Maximum 30 Day Average				0					1		
<b>Adjusted Gross Alpha</b>					Daily Maximum				0					1		

# FORMULA 2011





**SAFETY DATA SHEET**

**SECTION 1 - PRODUCT IDENTIFICATION**

PRODUCT NAME: FORMULA 2011-LT  
 PRODUCT USE: COOLING WATER TREATMENT  
 RESTRICTIONS ON USE: Refer to label, available technical information, and other appropriate sections of this SDS.  
 UN NUMBER: NOT REGULATED  
 PROPER SHIPPING NAME: NOT REGULATED  
 MANUFACTURER'S NAME: Garratt-Callahan Company  
 ADDRESS: 50 Ingold Road, Burlingame, CA 94010-2206  
 EMERGENCY PHONE: **North America: CHEMTREC: 1-800-424-9300**  
**Outside North America: +1-703-627-3887**  
 BUSINESS PHONE: Product Information: 650-697-5811  
 SDS NUMBER: SD2011LT  
 DATE OF REVISION: 5/17/2018

**SECTION 2 - HAZARDS IDENTIFICATION**

**SIGNAL WORD:** WARNING

**HAZARD STATEMENT:**

- H290: May be corrosive to metals. 1
- H303: May be harmful if swallowed. 3
- H316: Causes mild skin irritation. 3
- H320: Causes eye irritation. 2B
- H333: May be harmful if inhaled. 5
- H413: May cause long lasting harmful effects to aquatic life. 4

**PRECAUTIONARY STATEMENTS: (PREVENTION)**

- P101: If medical advice is needed, have product container or label at hand.
- P102: Keep out of reach of children.
- P103: Read label before use.
- P234: Keep only in original packaging.
- P264: Wash all exposed skin/hair thoroughly after handling.
- P273: Avoid release to the environment.

**HAZARDOUS MATERIAL IDENTIFICATION SYSTEM**

<b>HEALTH HAZARD (BLUE)</b>	<b>1</b>	Hazard Scale 0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe *=Chronic hazard
<b>FLAMMABILITY HAZARD (RED)</b>	<b>0</b>	
<b>PHYSICAL HAZARD (YELLOW)</b>	<b>0</b>	
<b>PERSONAL PROTECTION</b>		

**NFPA RATING  
FLAMMABILITY**





**SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS**

<u>Hazardous Ingredients</u>	<u>CAS#</u>	<u>EC#</u>	<u>ICSC#</u>	<u>WT %</u>
PHOSPHONOBUTANE TRICARBOXYLIC ACID	37971-36-1	253-733-5	NE	< 3
BENZOTRIAZOLE	95-14-7	202-394-1	1091	< 3
PHOSPHINOCARBOXYLIC ACID	71050-62-9	NA	NA	< 3

**SECTION 4 - FIRST AID MEASURES**

Exposed individuals must be taken for medical attention if any adverse effect occurs. Take a copy of this SDS to the health professional with the individual.

**WARNING:** May be corrosive to metals. May be harmful if swallowed. Causes mild skin irritation. Causes eye irritation. May be harmful if inhaled. May cause long lasting harmful effects to aquatic life. Also refer to Section 11 for symptoms, effects, and likely routes of exposure for this product.

**TARGET ORGANS:**

**ACUTE:** irritation of skin, eyes, respiratory and gastrointestinal systems.  
**CHRONIC:** irritation of skin, eyes, respiratory and gastrointestinal systems.

**SKIN EXPOSURE:** IF ON SKIN: Wash with soap and water. Minimum rinsing time is for 15 minutes. Take off contaminated clothing and wash before reuse. P332+P313: If skin irritation occurs: Get medical advice/attention.

**EYE EXPOSURE:** P305+P351+P338: IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing. Use sufficient force to open the eyelids. Have the exposed individual "roll" their eyes. Minimum rinsing time is for 15 minutes. P337+P313: If eye irritation persists: Get medical advice/attention.

**INHALATION:** P304+P312: IF INHALED: Call a POISON CENTER/doctor/ if you feel unwell.

**INGESTION: IF SWALLOWED:** P301+P312: IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell. Rinse mouth. Do NOT induce vomiting. Never induce vomiting or give diluents (milk or water) by mouth to someone who is unconscious, having convulsions, or unable to swallow.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Skin and respiratory disorders, as well as conditions involving the "Target Organs" may be aggravated by prolonged exposures to this product. Exposed individual must seek immediate medical attention if any adverse effect occurs.

**NOTES TO PHYSICIAN:** Treat symptoms as demonstrated by signs and distress in the patient.

**SECTION 5 - FIRE FIGHTING MEASURES**

**SUITABLE (AND UNSUITABLE) EXTINGUISHING MATERIALS:** Use media appropriate for the surrounding fire.

**SPECIFIC HAZARDS ARISING FROM THE CHEMICAL:** No unusual hazards

**SPECIAL PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIREFIGHTERS:** Firefighters should wear fully protective clothing (chemical impermeable, fully encapsulated suit) and positive pressure self-contained breathing apparatus. Do not release run off from fire control methods to sewer or waterways.

**SECTION 6 - ACCIDENTAL RELEASE MEASURES**

**PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT, ENVIRONMENTAL PRECAUTIONS AND EMERGENCY PROCEDURES.**

**WARNING:** Any container expansion or rounding indicates pressure build-up. Use extreme caution. When opening, release pressure slowly through opening.

**SPILL AND LEAK RESPONSE:** Uncontrolled releases should be responded to by appropriately trained personnel using pre-planned procedures. Proper protective equipment should be used, refer to Section 8 - exposure controls. P391: Collect spillage. P273: Avoid release to the environment. P390: Absorb spillage to prevent material-damage.

**Small Spill:** Mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

**Large Spill:** Restrict access to the area. Provide adequate protective equipment and ventilation. Stop leak if without risk. Remove chemicals which can react with the spilled material. Prevent entry into surface waters, sewers, basements or confined areas, dike if needed. Ensure that exposure to product is not at a concentration exceeding regulatory limits. Decontaminate the area thoroughly. Decontaminate all response equipment with soapy water before returning to service. Place all spill residue in a suitable container and seal.

**SECTION 7 - HANDLING AND STORAGE**

**PRECAUTIONS FOR SAFE HANDLING:** Keep out of reach of children. All employees who handle this material should be trained to handle it safely. Open containers slowly on a stable surface. As with all chemicals, avoid getting this product ON YOU or IN YOU. Avoid direct or prolonged contact with skin or eyes. Do not ingest. Wash thoroughly after handling this product. Do not eat, drink, smoke, or apply cosmetics while handling this product. Avoid breathing vapors, dusts or mists generated by this product. Use in a well-ventilated location. Remove contaminated clothing immediately. Use only as directed. Refer to Section 8 for exposure controls. P273: Avoid release to the environment.

**CONDITIONS FOR SAFE STORAGE:** Containers of this product must be properly labeled. Storage areas of this product should be clearly identified, well-illuminated, clear of obstruction and accessible only to trained and authorized personnel. Store containers in a clean, cool, well ventilated, dry location, away from direct sunlight, away from incompatible materials at temperatures between 50°F (10°C) - 100°F (37°C). Keep container tightly closed when not in use. P405: Store locked up. Do not ingest. Do not breathe vapor mist. Wash hands after handling. Refer to Section 10 for incompatibilities. P234: Keep only in original packaging. P406: Store in corrosion resistant container with a resistant inner liner.

**SECTION 8 - EXPOSURE CONTROLS - PERSONAL PROTECTION**

**VENTILATION AND ENGINEERING CONTROLS:** Use with adequate ventilation. Eyewash/safety shower station is recommended to be available near where this product is used/stored.

**EXPOSURE LIMITS/GUIDELINES:**

**EXPOSURE LIMITS IN AIR**

CHEMICAL NAME	CAS#	ACGIH TLV		OSHA PEL	OTHER
		TWA	STEL	TWA	
PHOSPHONOBUTANE TRICARBOXYLIC ACID	37971-36-1	NE	NE	NE	N/A
BENZOTRIAZOLE	95-14-7	NE	NE	NE	N/A
PHOSPHINOCARBOXYLIC ACID	71050-62-9	NE	NE	NE	N/A

NE = Not Established

**INGESTION:** Do not eat, drink, smoke, or apply cosmetics when handling this product. Wash all exposed skin/hair thoroughly after handling.

**RESPIRATORY PROTECTION:** Avoid breathing dust/fume/gas/mist/vapours/spray. Use only outdoors or in a well ventilated area. Maintain airborne contaminant concentrations below guidelines listed above, if applicable. Air-purifying respirators with dust/mist/fume/spray filters are recommended if operations may produce dusts, mists or sprays from this product with concentrations at or above levels posted above.

**EYE PROTECTION:** P264: Wash all exposed skin/hair thoroughly after handling. Wear chemical safety goggles or safety glasses with side shields. A face shield may also be necessary for splash protection.

**SKIN PROTECTION:** Wash all exposed skin/hair thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection. Use chemically-resistant gloves and skin protection, when handling this product. Use body protection appropriate for task (e.g., lab coat, overalls).

**SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES**

APPEARANCE and COLOR:	Clear yellow liquid	VAPOR PRESSURE, mm Hg @ 20°C:	Not determined
ODOR :	Odorless	VAPOR DENSITY (Air=1):	Not determined
ODOR THRESHOLD:	Not established	RELATIVE DENSITY@20°C (water=1):	1.11 - 1.13
pH:	2.0 - 4.0	SOLUBILITY IN WATER:	Complete
MELTING/FREEZING POINT:	NA	PARTITION COEFFICIENT(n-octanol/water):	Not established
BOILING POINT:	> 212 °F (100 °C)	AUTOIGNITION TEMPERATURE:	Not established
FLASHPOINT:	Non-flammable	DECOMPOSITION TEMPERATURE:	Not established
EVAPORATION RATE (n-BuAc=1):	Not established	VISCOSITY:	Not established
FLAMMABILITY (SOLID/GAS):	Not established	VOLATILE ORGANIC COMPOUNDS (%):	Not established
FLAMMABLE LIMITS (in air by volume, %):	Not established		

**SECTION 10 - STABILITY AND REACTIVITY**

<b>REACTIVITY:</b>	Not established.
<b>STABILITY:</b>	Stable under normal condition of use and storage.
<b>POSSIBILITY OF HAZARDOUS REACTIONS:</b>	Will not occur.
<b>CONDITIONS TO AVOID:</b>	Not established.
<b>INCOMPATIBLE MATERIALS:</b>	Strong bases.
<b>HAZARDOUS DECOMPOSITION PRODUCTS:</b>	When heated to decomposition, product may emit toxic fumes of oxides of carbon, nitrogen, phosphorous and sulfur.

**SECTION 11 - TOXICOLOGICAL INFORMATION**

<b>TOXICOLOGICAL EFFECTS</b>	No data available for this product.
<b>LIKELY ROUTES OF EXPOSURE</b>	Skin, eye contact and inhalation.
<b>RELATED SYMPTOMS</b>	Skin, eye, respiratory and gastrointestinal irritation. May be harmful if swallowed.
<b>DELAYED/IMMEDIATE/CHRONIC EFFECTS FROM SHORT AND LONG TERM EXPOSURES</b>	Skin, eye, respiratory and gastrointestinal irritation. May be harmful if swallowed.
<b>NUMERICAL MEASURES OF TOXICITY:</b>	Not established for this product.

**CARCINOGENICITY:** None of the components of this product are listed by the NTP, IARC, or regulated by OSHA AS carcinogens.

**SECTION 12 - ECOLOGICAL INFORMATION**

**ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.**

<b>ECOTOXICITY:</b>	Water Flea 48 hr LC50: 7071 ppm Fathead Minnow 96 hr LC50: 5359 ppm
<b>PERSISTENCE AND DEGRADABILITY:</b>	No data available for this product.
<b>BIOLOGICAL ACCUMULATION POTENTIAL:</b>	No data available for this product.
<b>MOBILITY IN SOIL:</b>	No data available for this product.
<b>OTHER ADVERSE EFFECTS (i.e., hazardous to the ozone layer):</b>	No data available for this product.

**BIOLOGICAL EXPOSURE INDICES:** Currently, Biological Exposure Indices (BEIs) have not been determined for the components of this product.

**SECTION 13 - DISPOSAL CONSIDERATIONS**

**DISPOSAL:** Thoroughly drain/empty containers and offer for recycling. Refer to Section 8 for exposure controls - personal protection. P501: Dispose of contents/container in accordance with local/regional/national/international regulations.

**SECTION 14 - TRANSPORTATION INFORMATION****PROPER SHIPPING NAME**

DOT: NOT REGULATED  
 IMDG/IMO: NOT REGULATED  
 IATA/ICAO: NOT REGULATED

**ENVIRONMENTAL HAZARDS**

(i.e., MARINE POLLUTANT): None known.

TRANSPORT IN BULK (according to  
 annex II marpol 73/78 and the IBC code): Not applicable.

SPECIAL PRECAUTIONS FOR USER: None known.

**SECTION 15 - REGULATORY INFORMATION****United States and International Regulations**

United States Regulations: U.S. SARA REPORTING REQUIREMENTS: The components of this product are subject to the reporting as listed below, requirements of Sections 302, 304, and 313 of Title of the Superfund Amendments and Reauthorization Act:

**CHEMICAL NAME**

PHOSPHONOBUTANE	SARA 302 (40 CFR 355, Appendix A) - NO
TRICARBOXYLIC ACID	SARA 304 (40 CFR Table 302.4) - NO SARA 313 (40 CFR 372.65) - NO
BENZOTRIAZOLE	SARA 302 (40 CFR 355, Appendix A) - NO SARA 304 (40 CFR Table 302.4) - NO SARA 313 (40 CFR 372.65) - NO
PHOSPHINOCARBOXYLIC ACID	SARA 302 (40 CFR 355, Appendix A) - NO SARA 304 (40 CFR Table 302.4) - NO SARA 313 (40 CFR 372.65) - NO SARA 302 (40 CFR 355, Appendix A) - NO SARA 304 (40 CFR Table 302.4) - NO

**U.S. Regulations**

U.S. SARA THRESHOLD PLANNING QUANTITY: There are no specific Threshold Planning Quantities for the components of this product. The default Federal SDS submission and inventory requirement filing threshold of 10,000 lbs (4,540 kg) therefore applies, per 40 CFR 370.20, U.S.

CERCLA REPORTABLE QUANTITY (RQ): None.

U.S. TSCA INVENTORY STATUS: The components of this product are listed on the TSCA Inventory, or are exempt.

SARA Title 311/312, Hazard Category: Acute Health: YES; Chronic: NO; Fire: NO; Reactive: NO; Sudden Release of Pressure: NO

California Safe Drinking Water and Toxic Enforcement Act (proposition 65): No component of this product is on the Proposition 65 list.

**International Regulations**

CANADIAN REGULATIONS:

CANADIAN DSL/NDSL INVENTORY STATUS: The components of this product are on the DSL or NDSL inventories or are exempt from listing.

CANADIAN WHMIS CLASSIFICATION: None.

**SECTION 16 - OTHER INFORMATION**

PREPARED BY: GARRATT CALLAHAN

DATE OF REVISION: 5/17/2018

Supersedes: 11/16/2017

**Kosher Status:**

FORMULA 2011LT has been certified by the Orthodox Union as Kosher Pareve under the UK ID number of OUV3-BOWLO7J when prepared in either the Addison, Illinois or Burlingame, California facilities.

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user's intended purpose or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose.

WATER TREATMENT EXPERTISE SINCE 1904

FORMULA 2011-LT

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# FORMULA 314 T





**SAFETY DATA SHEET**

**SECTION 1 - PRODUCT IDENTIFICATION**

PRODUCT NAME:	FORMULA 314-T
PRODUCT USE:	BIOCIDE
RESTRICTIONS ON USE:	Refer to label, available technical information, and other appropriate sections of this SDS.
UN NUMBER:	1479
PROPER SHIPPING NAME:	OXIDIZING SOLID, N.O.S. (1-BROMO-3-CHLORO-5,5-DIMETHYLHYDANTOIN), 5.1, PGI,
MANUFACTURER'S NAME:	Garratt-Callahan Company
ADDRESS:	50 Ingold Road, Burlingame, CA 94010-2206
EMERGENCY PHONE:	<b>North America: CHEMTREC: 1-800-424-9300</b> <b>Outside North America: +1-703-527-3887</b>
BUSINESS PHONE:	Product Information: 650-697-5811
SDS NUMBER:	SD3314
DATE OF REVISION:	6/11/2015

**SECTION 2 - HAZARDS IDENTIFICATION**

**SIGNAL WORD:** DANGER

**HAZARD STATEMENT:**

- H270: May cause or intensify fire; oxidizer. 1
- H302: Harmful if swallowed. 4
- H314: Causes severe skin burns and eye damage. 1A
- H335: May cause respiratory irritation. 3



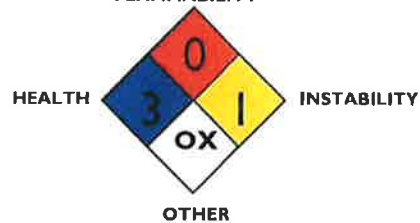
**PRECAUTIONARY STATEMENTS: (PREVENTION)**

- P101: If medical advice is needed, have product container or label at hand.
- P102: Keep out of reach of children.
- P103: Read label before use.
- P220: Keep/Store away from clothing/combustible materials.
- P244: Keep reduction valves free from grease and oil.
- P260: Do not breathe dust/fume/gas/mist/vapours/spray.
- P264: Wash all exposed skin/hair thoroughly after handling.
- P270: Do not eat, drink or smoke when using this product.
- P271: Use only outdoors or in a well-ventilated area.
- P280: Wear protective gloves/protective clothing/eye protection/face protection.

**HAZARDOUS MATERIAL IDENTIFICATION SYSTEM**

HEALTH HAZARD (BLUE)	3	Hazard Scale 0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe *=Chronic hazard
FLAMMABILITY HAZARD (RED)	0	
REACTIVITY HAZARD (YELLOW)	1	

**NFPA RATING  
FLAMMABILITY**



**SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS**

Hazardous Ingredients	CAS#	EC#	ICSC#	WT %
I-BROMO-3-CHLORO-5,5-DIMETHYL-HYDANTOIN	16079-88-2	240-230-0	NE	60 - 100

**SECTION 4 - FIRST AID MEASURES**

Exposed individuals must be taken for medical attention if any adverse effect occurs. Take a copy of this SDS to the health professional with the individual. P310: Immediately call a POISON CENTER or doctor/physician.

**DANGER:** Harmful if swallowed. Causes severe skin burns and eye damage. May cause respiratory irritation. Also refer to Section 11 for symptoms, effects, and likely routes of exposure for this product.

**TARGET ORGANS:**

**ACUTE:** irritation of skin, eyes, respiratory and gastrointestinal systems.  
**CHRONIC:** irritation of skin, eyes, respiratory and gastrointestinal systems.

**SKIN EXPOSURE:** P303+P361+P353: IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower. Minimum flushing time is for 15 minutes. Remove exposed or contaminated clothing, taking care not to contaminate the eyes. P363: Wash contaminated clothing before reuse. P310: Immediately call a POISON CENTER or doctor/physician.

**EYE EXPOSURE:** P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing. Use sufficient force to open the eyelids. Have the exposed individual "roll" their eyes. Minimum flushing time is for 15 minutes. P310: Immediately call a POISON CENTER or doctor/physician.

**INHALATION:** P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P312: Call a POISON CENTER or doctor/physician if you feel unwell.

**INGESTION:** P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P301+312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Never induce vomiting or give diluents (milk or water) by mouth to someone who is unconscious, having convulsions, or unable to swallow. P310: Immediately call a POISON CENTER or doctor/physician.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Skin and respiratory disorders, as well as conditions involving the "Target Organs" may be aggravated by prolonged exposures to this product. Exposed individual must seek immediate medical attention if any adverse effect occurs.

**NOTES TO PHYSICIAN:** Treat symptoms as demonstrated by signs and distress in the patient.

**SECTION 5 - FIRE FIGHTING MEASURES****SUITABLE (AND UNSUITABLE) EXTINGUISHING MATERIALS:**

Product is non-flammable. Water spray, fog or mist. Alcohol resistant foam. Do not use ammonium phosphate (ABC), other dry chemical extinguishers or CO<sub>2</sub>. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**SPECIFIC HAZARDS ARISING FROM THE CHEMICAL:**

Oxidizing material. Forms explosive mixtures with combustible organic or other easily oxidizable materials. May release hydrogen bromide or bromine gas, nitrogen oxides, hydrogen chloride when wet. Fire causes formation of toxic gases, vapors of bromine, chlorine, oxides of nitrogen and/or carbon.

**SPECIAL PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIREFIGHTERS:**

Firefighters should wear fully protective clothing (chemical impermeable, fully encapsulated suit) and positive pressure self-contained breathing apparatus. Do not release run off from fire control methods to sewer or waterways. P370+P376: In case of fire: Stop leak if safe to do so.

**SECTION 6 - ACCIDENTAL RELEASE MEASURES**

**PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT, ENVIRONMENTAL PRECAUTIONS AND EMERGENCY PROCEDURES.**

**WARNING:** Any container expansion or rounding indicates pressure build-up. Use extreme caution. When opening, release pressure slowly through opening.

**SPILL AND LEAK RESPONSE:** Uncontrolled releases should be responded to by appropriately trained personnel using pre-planned procedures. Proper protective equipment should be used, refer to Section 8 - exposure controls.

**Small Spill:** Mop up, or absorb with an inert dry material and place in an appropriate waste disposal container, P391: Collect spillage.

**Large Spill:** Restrict access to the area. Provide adequate protective equipment and ventilation. Stop leak if without risk. Remove chemicals which can react with the spilled material. Add dry inert material to contain and absorb spilled material. Prevent entry into surface waters, sewers, basements or confined areas, dike if needed. Avoid generation of dust. Avoid contact with water. Ensure that exposure to product is not at a concentration exceeding regulatory limits. Decontaminate the area thoroughly. Decontaminate all response equipment with soapy water before returning to service. Place all spill residue in a suitable container and seal, P391: Collect spillage.

**SECTION 7 - HANDLING AND STORAGE**

**PRECAUTIONS FOR SAFE HANDLING:** Keep out of reach of children. All employees who handle this material should be trained to handle it safely. Open containers slowly on a stable surface. As with all chemicals, avoid getting this product ON YOU or IN YOU. Avoid direct or prolonged contact with skin or eyes. Do not ingest. Wash thoroughly after handling this product. Do not eat, drink, smoke, or apply cosmetics while handling this product. Avoid breathing vapors, dusts or mists generated by this product. Use in a well-ventilated location. Remove contaminated clothing immediately. Use only as directed. Refer to Section 8 for exposure controls.

**CONDITIONS FOR SAFE STORAGE:** Containers of this product must be properly labeled. Storage areas of this product should be clearly identified, well-illuminated, clear of obstruction and accessible only to trained and authorized personnel. Store containers in a clean, cool, well ventilated, dry location, away from direct sunlight, away from incompatible materials at temperatures between 50°F (10°C) - 100°F (37°C). Keep container tightly closed when not in use. Avoid spilling, skin and eye contact. Avoid contact with acids, moisture or combustible materials. Keep away from heat, sparks and open flames. P405: Store locked up. Do not ingest. Do not breathe vapor mist. Wash hands after handling. Refer to Section 10 for incompatibilities. P403+P233: Store in a well ventilated place. Keep container tightly closed.

**SECTION 8 - EXPOSURE CONTROLS - PERSONAL PROTECTION**

**VENTILATION AND ENGINEERING CONTROLS:** Use with adequate ventilation. Eyewash/safety shower station is recommended to be available near where this product is used/stored.

**EXPOSURE LIMITS/GUIDELINES:**

CHEMICAL NAME	CAS#	EXPOSURE LIMITS IN AIR			
		ACGIH TLY		OSHA PEL	OTHER
		TWA	STEL	TWA	
I-BROMO-3-CHLORO-5,5-DIMETHYL-HYDANTOIN	16079-88-2	NE	NE	NE	N/A

NE = Not Established

**INGESTION:** P264: Wash all exposed skin/hair thoroughly after handling. P270: Do not eat, drink or smoke when using this product.

**RESPIRATORY PROTECTION:** P260: Do not breathe dust/fume/gas/mist/vapours/spray. P271: Use only outdoors or in a well-ventilated area. Maintain airborne contaminant concentrations below guidelines listed above, if applicable. Air-purifying respirators with dust/mist/fume/spray filters are recommended if operations may produce dusts, mists or sprays from this product with concentrations at or above levels posted above.

**EYE PROTECTION:** P264: Wash all exposed skin/hair thoroughly after handling. P280: Wear protective gloves/protective clothing/eye protection/face protection. Wear chemical safety goggles or safety glasses with side shields. A face shield may also be necessary for splash protection.

**SKIN PROTECTION:** P260: Do not breathe dust/fume/gas/mist/vapours/spray. P264: Wash all exposed skin/hair thoroughly after handling. P280: Wear protective gloves/protective clothing/eye protection/face protection. Use chemically-resistant gloves and skin protection, when handling this product. Use body protection appropriate for task (e.g., lab coat, overalls).



# Industrial and Sanitary Outfalls 2019 NPDES Permit Re-Application Outfall 03A181 Fact Sheet

TA-55 Facility Operations  
TA-55-6 Cooling Towers







## Revision Log

<u>Revision No.</u>	<u>Date</u>	<u>Page Nos.</u>	<u>Change Description</u>
<u>0</u>	<u>3/18/2019</u>	<u>NA</u>	<u>Original</u>
<u>1</u>	<u>7/31/2019</u>	<u>Attachment D, page D-5</u>	<u>Replaced Gross Alpha with "Adjusted Gross Alpha."</u>
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

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OUTFALL No.	TA - Bldg.	Year	Monitoring Period	Parameter	Quantity or Loading		Quality or Concentration		Permit Limit	Units	Number of Samples	Frequency
					Average	Maximum	Minimum	Average				
Total Suspended Solids					Daily Average	Units	Maximum	Units			16	
Total Suspended Solids					Maximum 30 Day Average	Maximum					16	
03A181	TA55-6	2014	Dec	Phosphorus, Total		****	<1.45		mg/L	30 - 100	1	Quarterly
03A181	TA55-6	2015	Mar	Phosphorus, Total		****	3.66		mg/L	20 - 40	1	Quarterly
03A181	TA55-6	2015	Jun	Phosphorus, Total		****	4.08		mg/L	20 - 40	1	Quarterly
03A181	TA55-6	2015	Sept	Phosphorus, Total		****	2.41		mg/L	20 - 40	1	Quarterly
03A181	TA55-6	2015	Dec	Phosphorus, Total		****	3.42		mg/L	20 - 40	1	Quarterly
03A181	TA55-6	2016	Mar	Phosphorus, Total		****	6		mg/L	20 - 40	1	Quarterly
03A181	TA55-6	2016	Jun	Phosphorus, Total		****	2.95		mg/L	20 - 40	1	Quarterly
03A181	TA55-6	2016	Sept	Phosphorus, Total		****	0.99		mg/L	20 - 40	1	Quarterly
03A181	TA55-6	2016	Dec	Phosphorus, Total		****	3.39		mg/L	20 - 40	1	Quarterly
03A181	TA55-6	2017	Mar	Phosphorus, Total		****	4.58		mg/L	20 - 40	1	Quarterly
03A181	TA55-6	2017	Jun	Phosphorus, Total		****	2.51		mg/L	20 - 40	1	Quarterly
03A181	TA55-6	2017	Sept	Phosphorus, Total		****	2.83		mg/L	20 - 40	1	Quarterly
03A181	TA55-6	2017	Dec	Phosphorus, Total		****	2.94		mg/L	20 - 40	1	Quarterly
03A181	TA55-6	2018	Mar	Phosphorus, Total		****	2.54		mg/L	20 - 40	1	Quarterly
03A181	TA55-6	2018	Jun	Phosphorus, Total		****	2.79		mg/L	20 - 40	1	Quarterly
03A181	TA55-6	2018	Sept	Phosphorus, Total		****	2.66		mg/L	20 - 40	1	Quarterly
Phosphorus, Total					Daily Average		3.2				16	
Phosphorus, Total					Maximum 30 Day Average	Maximum	6.0				16	
Phosphorus, Total					Maximum						16	
03A181	TA55-6	2015	Sept	Copper, Dissolved		****	0.00158		mg/L	NA	1	Yearly
03A181	TA55-6	2016	Sept	Copper, Dissolved		****	0.00231		mg/L	NA	1	Yearly
03A181	TA55-6	2017	Sept	Copper, Dissolved		****	0.00258		mg/L	NA	1	Yearly
03A181	TA55-6	2018	Sept	Copper, Dissolved		****	0.00243		mg/L	NA	1	Yearly
Copper, Dissolved					Daily Average		0.0022				4	
Copper, Dissolved					Maximum 30 Day Average	Maximum	0.00258				4	
Copper, Dissolved					Maximum						4	
03A181	TA55-6	2015	Sept	Aluminum, Total		****	<0.015		mg/L	NA	1	Yearly
03A181	TA55-6	2016	Sept	Aluminum, Total		****	<0.015		mg/L	NA	1	Yearly
03A181	TA55-6	2017	Sept	Aluminum, Total		****	<0.0193		mg/L	NA	1	Yearly
03A181	TA55-6	2018	Sept	Aluminum, Total		****	<0.0193		mg/L	NA	1	Yearly
Aluminum, Total					Daily Average						4	
Aluminum, Total					Maximum 30 Day Average	Maximum	0.00000				4	
Aluminum, Total					Maximum		0.00000				4	
03A181	TA55-6	2016	Sept	Adjusted Gross Alpha		****	0.403		pCi/L	NA	1	Term
Adjusted Gross Alpha					Daily Average						1	
Adjusted Gross Alpha					Maximum 30 Day Average	Maximum	0.403				1	
Adjusted Gross Alpha					Maximum		0.403				1	



*Environmental Protection & Compliance  
Division*

*Compliance Programs Group*

Los Alamos National Laboratory  
PO Box 1663, K490  
Los Alamos, NM 87545  
505-667-0666

*Symbol:* EPC-DO: 19-302

*LAUR:* 19-28341

*Date:* **AUG 20 2019**

Dorothy Brown, 6WQ-PO  
U.S. Environmental Protection Agency  
1445 Ross Avenue, Suite 1200  
Dallas, TX 75202-2733

**Subject: NPDES Permit No. NM0028355, 2019 NPDES Permit Re-Application,  
Supplemental Package 3**

Dear Ms. Brown:

The purpose of this letter is to provide supplemental information, as discussed with the U.S. Environmental Protection Agency (EPA) on July 12, 2019, that is applicable to the renewal of the Los Alamos National Laboratory (LANL) National Pollutant Discharge Elimination System (NPDES) Permit No NM00283555. Specifically, enclosed with this letter are attachments that provide three notice of planned change letters, submitted to the EPA after the 2019 Permit Re-Application was submitted on March 26, 2019.

If you need additional information or have questions regarding the Permit Re-Application, please contact Karen Armijo, DOE at (505-665-7314) or Mike Saladen, Triad, at (505-665-6085).

Sincerely,

A handwritten signature in blue ink, appearing to read "Mike Saladen".

Taunia Van Valkenburg  
Group Leader

TVV/MTS/JKG:jdm

Attachment(s): Attachment 1 LANL NPDES Permit No. NM0028355, Notice of Planned Change to Outfall 05A055 by Adding Second Electric Evaporator to the High Explosives Wastewater Treatment Facility (HEWTF)  
Attachment 2 LANL NPDES Permit No. NM0028355, Notice of Planned Change to add Evaporative Sprayer Model 420B to SERF Evaporation Basins  
Attachment 3 LANL NPDES Permit No. NM0028355, Notice of Planned Change to Outfall 03A160

Copy: Isaac Chen, EPA, [Chen.Isaac@epa.gov](mailto:Chen.Isaac@epa.gov)  
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Michael Saladen, EPC-CP, [saladen@lanl.gov](mailto:saladen@lanl.gov)  
Jennifer Griffin, EPC-CP, [jkg@lanl.gov](mailto:jkg@lanl.gov)  
[Adesh-records@lanl.gov](mailto:Adesh-records@lanl.gov)  
[lasomailbox@nnsa.doe.gov](mailto:lasomailbox@nnsa.doe.gov)  
[epccorrespondence@lanl.gov](mailto:epccorrespondence@lanl.gov)

# **ATTACHMENT 1**

**LANL NPDES Permit No. NM0028355, Notice  
of Planned Change to Outfall 05A055 by Adding  
Second Electric Evaporator to the  
High Explosives Wastewater Treatment Facility  
(HEWTF)**

**EPC-DO: 19-302**

**LA-UR-19-28341**

**Date:**                     **AUG 20 2019**





***Environmental Protection & Compliance  
Division***

Los Alamos National Laboratory  
PO Box 1663, K490  
Los Alamos, NM 87545  
505-667-0666

*Symbol:* EPC-DO: 19-153  
*LAUR:* 19-24181  
*Date:* **MAY 09 2019**

Ms. Nancy Williams  
U.S. Environmental Protection Agency, Region 6  
Compliance Assurance and Enforcement Division  
Water Enforcement Branch (6EN)  
1445 Ross Avenue, Suite 1200  
Dallas, TX 75202-2733

**Subject: Los Alamos National Laboratory, National Pollutant Discharge Elimination System, Permit No. NM0028355, Notice of Planned Change to Outfall 05A055 by Adding Second Electric Evaporator to the High Explosives Wastewater Treatment Facility (HEWTF)**

Dear Ms. Williams:

The National Pollutant Discharge Elimination System (NPDES) Permit No. NM0028355 for the National Nuclear Security Administration (NNSA) and Triad National Security, LLC (Triad) requires the permittee(s) to notify the U. S. Environmental Protection Agency (EPA) of any physical alterations or additions to a permitted facility that could significantly change the nature or increase the quantity of pollutants discharged (see Part III.D.1.a. Report Requirements).

This notice of change is for the addition of a second evaporator to the High Explosives Wastewater Treatment Facility (HEWTF) at TA-16-1508. The HEWTF currently includes the option to discharge to Outfall 05A055 or to an ENCON electric evaporator that is rated for 24 gallons/hour. The facility intends to add a second ENCON electric evaporator that is rated at 40 gallons/hour. The purpose of the addition is to provide redundancy and increase the overall evaporation capability of the HEWTF. Attachment 1 provides a revised process schematic and water balance. Attachment 2 provides the specifications for new evaporator. This change is not expected to impact the permit conditions currently provided in the existing NPDES permit NM0028355.

Please contact Jennifer Griffin at (505) 667-6741 or Michael T. Saladen at (505) 665-6085 of the Environmental Compliance Programs Group (EPC-CP) if you have questions.

Sincerely,



Taunia S. Van Valkenburg  
Group Leader

TVV/MTS/JKG:jdm

Attachment(s): Attachment 1 NPDES-FD-014-R1, Process Schematic & Water Balance for the High Explosives Wastewater Treatment Facility  
Attachment 2 Specifications for the ENCON Evaporator

Copy: Sarah Holcomb, NMED/SWQB, [sarah.Holcomb@state.nm.us](mailto:sarah.Holcomb@state.nm.us) (Hard copy, E-File)  
Shelly Lemon, NMED/SWQB, [Shelly.Lemon@state.nm.us](mailto:Shelly.Lemon@state.nm.us) (E-File)  
Erin Shea, NMED/SWQB, [erin.shea@state.nm.us](mailto:erin.shea@state.nm.us) (E-File)  
Michelle Hunter, NMED/GWQB, [michelle.hunter@state.nm.us](mailto:michelle.hunter@state.nm.us) (E-File)  
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Enrique Torres, EPC-DO, [etorres@lanl.gov](mailto:etorres@lanl.gov) (E-File)  
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[epc-correspondence@lanl.gov](mailto:epc-correspondence@lanl.gov), (E-File)  
[adesh-records@lanl.gov](mailto:adesh-records@lanl.gov), (E-File)

# **ATTACHMENT 1**

## **NPDES-FD-014-R1, Process Schematic & Water Balance for the High Explosives Wastewater Treatment Facility**

**EPC-DO: 19-153**

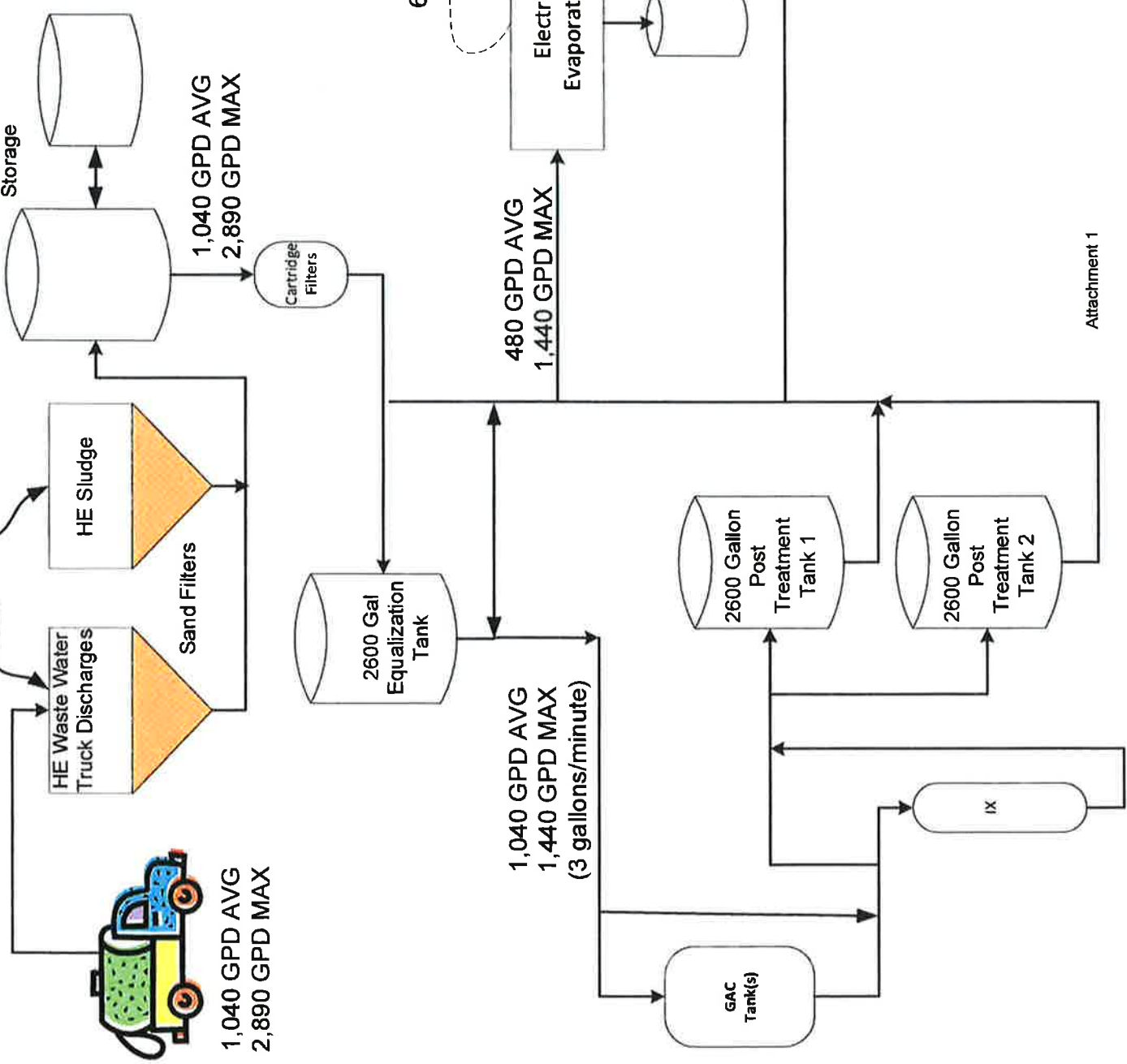
**LA-UR: 19-24181**

**MAY 09 2019**

**Date:** \_\_\_\_\_

**GENERAL NOTES AND LEGEND**

- IX = Ion Exchange Columns
- GAC = Granular Activated Carbon



**NPDES-FD-18-014-R1**  
**PROCESS SCHEMATIC & WATER BALANCE**  
**FOR THE HIGH EXPLOSIVES WASTEWATER**  
**TREATMENT FACILITY (HEWTF)**  
**May 8, 2019**

2019 NPDES Permit Re-Application  
**OUTFALL 05A055**

Attachment 1

Attachment 1

# **ATTACHMENT 2**

## **Specifications for the ENCON Evaporator**

**EPC-DO: 19-153**

**LA-UR: 19-24181**

**Date:**                     **MAY 09 2019**



# THERMAL

# EVAPORATOR

## Cost Effective Wastewater Minimization

- ✓ Handles Different Wastewater Streams...Simultaneously!
- ✓ Dramatically Reduces Disposal Volume and Cost
- ✓ Eliminates Need to Discharge Wastewater
- ✓ Easy to Install and Operate
- ✓ Helps Reduce the Costs and Liabilities of Waste Disposal
- ✓ A Wide Variety of Heat Sources Including:
  - Natural Gas
  - Propane
  - Steam
  - #2 Fuel Oil
  - Diesel
  - Kerosene
  - Electricity
  - Waste Oil
  - Off-Spec Landfill Gas



**Evaporation System**  
Exhausts Clean Water Vapor

### Distillation System

Converts Wastewater to Clean Water



[www.evaporator.com](http://www.evaporator.com)

# ENCON

ENERGY CONSCIOUS INNOVATION

ENCON Evaporation and Distillation Systems are engineered to provide you with the most effective and economical method of wastewater minimization possible.

All ENCON systems are assembled with the highest quality components, ensuring years of trouble free operation.

Our unique heat exchanger design on our thermal units provides extremely efficient heat transfer, resulting in reduced fuel costs.

Key to the effectiveness of our ENCON Thermal Evaporators is the Mist Eliminator. This feature captures unwanted contaminants before exhausting, thus enabling you to comply with today's stringent emissions regulations (evaporation) or to return high quality water to your process (distillation).

### Put Our Engineering and Regulatory Expertise to Work for You

ENCON Evaporators provides the following services relative to evaporation/distillation projects:

- Free wastewater qualification analysis to ensure application feasibility
- Regulatory compliance and paperwork
- System design and compliance for hazardous waste applications
- PLC programming to optimize system automation
- Closed loop recycling evaluation and analysis

## High Quality Components and Superior Design



### PLC Control Panel

NEMA 4 PLC control panel with touch screen OIT provides readout of wastewater and heated air temperatures, mist pad pressure, plus alarm and operating conditions for maximum operator feedback. The OIT also includes a built-in cycle timer.



### Built-in Ethernet Port

Every control panel has a built-in ethernet connection, which allows for easy remote program modifications and/or troubleshooting of the system by ENCON personnel.



### Redundant Burner Contactors

Each burner has a duty contactor and a redundant contactor. This design ensures maximum safety by opening the redundant contactor in the event the duty contactor should fail electrically or mechanically.



### Level Sensing

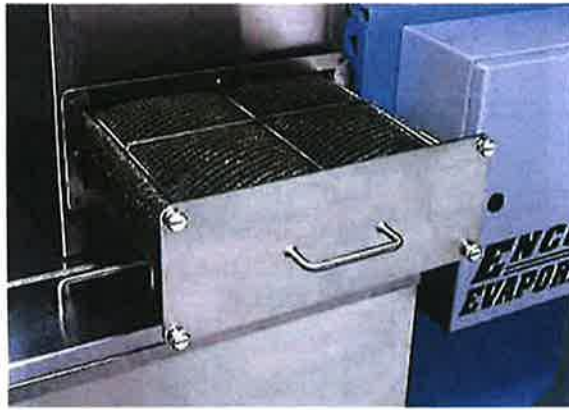
Tuning fork level probes provide reliable auto-filling and shutdown operations even in conditions of severe foam. The durable level probes are made of stainless steel for excellent corrosion resistance. Hastelloy level probes are available for highly corrosive applications.



# Result in Excellent Long Term Performance!!!

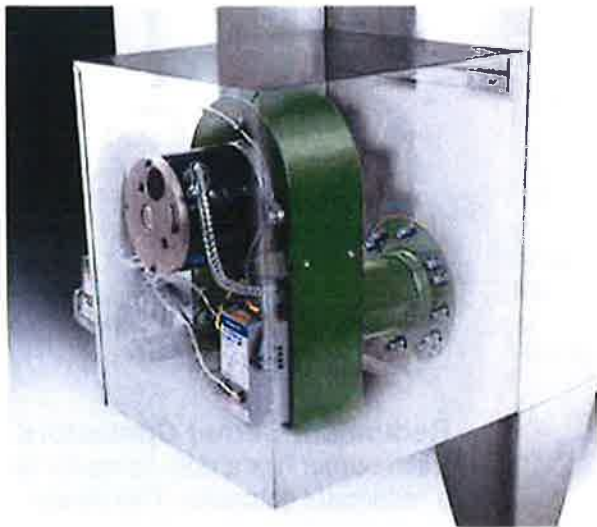
## Mist Eliminator System

The stainless mesh filter is designed for easy removal from its compression fit housing. The system is monitored for contaminant loading and airflow, which is interlaced to the control panel for maximum operator feedback.



## Forced Draft Burner

Each fuel heated system consists of a burner with: Honeywell controls; pressure gauge and gas volume meter for monitoring gas inlet conditions; airflow detection and lockout; spark ignition; redundant main valve and burner contactors for maximum safety. FM gas trains and gas flow transmitters are standard on larger systems. The stainless steel burner protection shroud is mounted on a track hanger for ease of removal and reattachment. Natural gas, Propane, Dual Fuel, Oil, Diesel, Waste Oil and Low NO<sub>x</sub> burners are available.



## Blower System

1725 RPM, TEFC Motor with Class B Insulation rated for high temperatures. Extremely quiet operation and as much as three times the longevity of 3450 RPM motors. Heavy gauge aluminum blower provides durability and longevity.



## Cleanout Flange

Large six inch cleanout with flange cover and a 1 1/2" NPT fitting for pump connection and ease of residue removal.

Before purchasing an evaporation or distillation system, challenge the vendor to explain their mist eliminator design.

Over the years, evaporators have been notorious for exhausting contaminants, which can be detrimental to the environment.

Effective mist capturing systems must have the following features in order to pass the ever tightening federal and state environmental regulations:

- Compression fit mist pad to capture entrained contaminants
- Mist pad rated to 10 microns or less to capture even the smallest droplets
- Stainless steel mist pad and housing to ensure long term integrity and aesthetics
- Adequate buffer zone between the water level and mist pad, to allow fallback of the contaminants
- Monitoring of mist pad loading to ensure consistent airflow and evaporation rates
- Easy removal of the mist pad to minimize manpower requirements

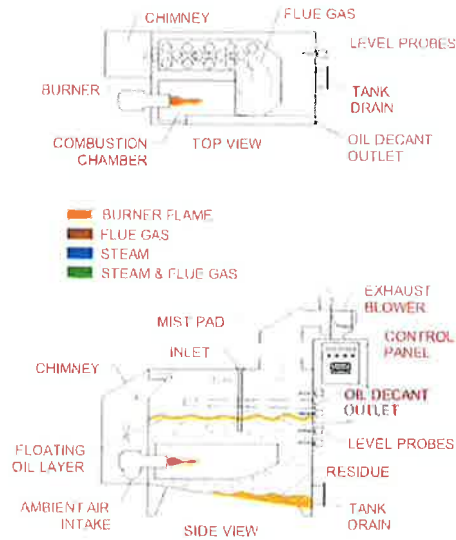
## Typical Operation

1. Wastewater is either pumped or gravity fed into the system through a 1" NPT fitting on lid.
2. When the wastewater being fed into the evaporator has covered the low level probe for thirty seconds, the heat source will be enabled. Wastewater will continue to feed until it reaches the auto level probe.
3. The burner(s) fire into the combustion chamber and the hot gases travel past the vertical tubes inside the heat exchanger until they reach the insulated chimney outside the evaporator tank (see Exhaust Scenarios).
4. The wastewater is heated to boiling and is driven off as clean water vapor.
5. As the water vapor is driven off, the liquid level will gradually fall below the auto level probe. After a set time period, the system will refill itself up to the auto level probe.
6. This process will continue until either the water reaches the high temperature set point or the cycle timer counts down to zero.

**We Encourage You to Speak to Our Valued Clients about the ENCON Systems and Our Superior Customer Service**

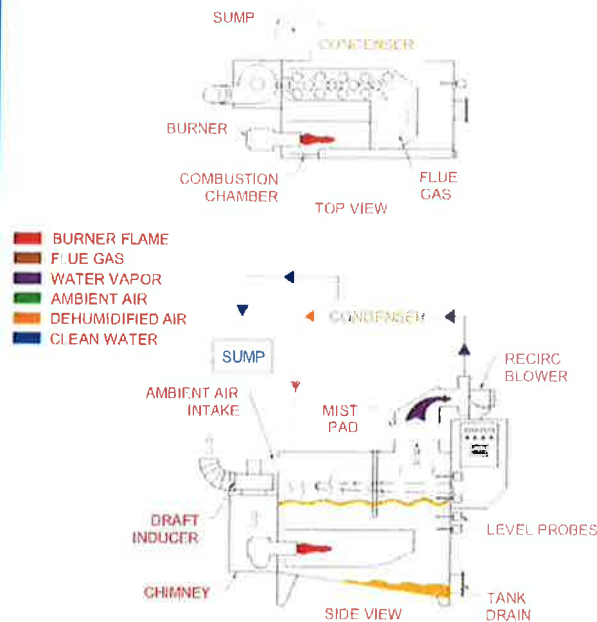
## Exhaust Scenarios

### Evaporation System



The flue gases are pulled back into the evaporator, mixed with the ambient air and drawn across the surface of the boiling water. The exhaust blower pulls the combined steam and gases through the mist eliminator and pushes them up through the stack and outside the building.

### Distillation System



The flue gases are not pulled back into the evaporator. Instead, they are vented separately up their own stack. The recirculation blower pulled the steam through the mist eliminator and pushed it through the condenser. The clean water is directed to a sump and the dehumidified air is returned to the system.

### ENCON Evaporators

1368 Hooksett Rd, Unit 9 • Hooksett, NH 03106 USA

T 603-624-5110 • F 603-627-9520

www.evaporator.com • sales@evaporator.com

PHYSICAL	EVAPORATION UNIT	DISTILLATION UNIT
Dimensions :	98" x 52" x 84" (L x W x H)	98" x 64" x 84" (L x W x H)
Weight (Empty):	1400 lbs (empty) / 1800 lbs (crated)	1800 lbs (empty) / 2300 lbs (crated)
Condenser Size:	N/A	6"Ø x 30"L (2" FNPT chill water fittings)
Vent Stack Diameter:	6" OD	N/A
Blower Volume:	780 CFM, 3/4 HP, 1725 RPM	
Inlet Pipe Diameter:	Fluid - 1" FNPT	
Cleanout Diameter:	6" Flanged Cap with 1.5" FNPT fitting	
Heating Elements:	Three 40 kW low watt density immersion heaters	
Tank Capacity:	255 gallons @ Low level, 316 gallons @ Auto-run level, 353 gallons at High level	
Tank Bottom:	8° downward slope to a 6" cleanout flange	

UTILITIES	EVAPORATION UNIT	DISTILLATION UNIT
Electric Requirements:	480 VAC, 3 Phase, 150 Amp Draw (not available in 240 VAC) – requires larger circuit size	
Cooling Water:	N/A	60 gallons per minute @ 90°F (42 tons)

FABRICATION	316SS VERSION	6% MOLY VERSION	HASTELLOY VERSION
Tank:	316L Stainless, 14 ga	6% Molybdenum, 14 ga	Hastelloy, 14 ga
Heating Elements:	316L Stainless Sheath	Titanium Sheath	Titanium Sheath
Mist Eliminator Pad:	316L Stainless		
Skins and Lids:	Polished 304 Stainless Steel, 18 ga		
Insulation:	All 6 sides, rated to 450F, R = 4.3		

CONTROLS	ALL UNITS
Temperature Controls:	Four (4) channel analog card with 2 Type J Thermocouples: Fluid Concentration Monitoring & Element Intake/Redundant Low Level Shut-off
Control Inputs:	3 Frequency Shift Level Probes and Mist Pad Differential Pressure Transducer
Remote Connection:	Ethernet port for direct connection by ENCON Engineers
Control Panel:	UL Listed, NEMA 4, PLC Control Panel
	Touch screen Operator Interface Display with messages for normal & alarm conditions.
	Main power selector switch
	Indicators (2) – Main Power, Heater(s)

QUALITY	ALL UNITS
Leak Test:	Dye penetrant test performed on tank welds
I/O Simulation:	All I/O and controls are fully tested to insure accuracy/functionality
Warranty:	One Year for Parts and Workmanship Issues

Specifications subject to change without notice.

	<b>ENCON Evaporators</b> <a href="http://www.evaporator.com">www.evaporator.com</a>	1368 Hooksett Rd., Unit 9, Hooksett, NH 03106 USA Tel. (603) 624-5110 Fax: (603) 627-9520 Email: <a href="mailto:sales@evaporator.com">sales@evaporator.com</a>	Printed in the USA Rev 3
	<hr/>		



## STANDARD FEATURES OF ENCON EVAPORATORS (8-400 GPH)

- Ethernet Hub that allows for remote connection to PLC by **ENCON** Service Engineers.
- On-board diagnostics that monitor level controls for correct operation and system shutdown.
- OIP Display showing Fluid Temperature, Air/Heating Element Temperature, Mist Pad Condition.
- Normal operation and alarm conditions are displayed on interface panel as text messages.
- Gas volume meter to monitor system throughput on gas fired systems.
- Low Watt Density Heating Elements on electric systems.
- Mist Eliminator System to capture entrained water droplets. Interfaced to the PLC and will shut down the system when the pad requires cleaning.
- Primary Low-Low Liquid Level shutdown of heat source with tuning fork level probe.
- Redundant Low-Low liquid level shutdown with thermocouple and temperature controller.
- High AutoFill Liquid Level to initiate and stop fill sequence.
- High-High Liquid Level shutdown. Serves as redundancy for High AutoFill Level.
- Insulation rated at up to 450F on all six (6) sides.
- 4" OR 6" Cleanout with six (6) and eight (8) bolt flanges for ease of removal and tank cleaning.
- 1.5" NPT Fitting in the flange plate to connect a residue removal pump.
- Outer Skins constructed of 304 Stainless Steel.
- Front panel Oil Weir and Decanting System.
- Control Panel that meets **NEMA 4** standards. Panel includes easy to read display with text messaging.

Mechanical Vapor Compression (MVC) Evaporators Waste Oil Evaporators  
Thermal Evaporators Drum Evaporators / Dryers

## PROCESS DESCRIPTION OF ENCON EVAPORATORS

1. Wastewater is collected in primary holding tank.
2. Water is either pumped or gravity fed into evaporator through 1" NPT fitting on lid.
3. There are three (3) level controls in the standard auto-fill system –
  - a) low level controls heating element(s) operation, on and off
  - b) auto-fill level initiates and ends fill sequence, through pump or actuated ball valve
  - c) high level is a redundancy for auto-fill level
4. As the fluid flows into the evaporator and reaches the low-low level the heating elements will be energized.
5. Fluid will continue to flow until it reaches the auto-fill level. Pump or actuated ball valve will be deactivated.
6. As fluid comes to a boil and begins the evaporation process, the liquid level will drop down ~1.5". Pump or actuated ball valve will be energized and more fluid will be fed into the Evaporator.
7. This process will continue until either the fluid temperature controller reaches the set point or the cycle timer counts down to zero.
8. When activated, the heating elements will energize and heat the wastewater to its boiling point. At this time, there are two (2) ways the flue gases and steam may be ducted:
  - a) If customer has chosen to vent to atmosphere, the blower pulls the steam through the 10 micron Mist Eliminator and pushes it up through the stack to the outside.
  - b) If customer has chosen the "closed loop" condenser package, The blower pulls the steam through the Mist Eliminator and pushes it through the connection from the blower to the inlet side of the condenser which is horizontally directed on the shelf that is mounted on the back side of the evaporator tank.

## **ATTACHMENT 2**

**LANL NPDES Permit No. NM0028355, Notice  
of Planned Change to add Evaporative Sprayer  
Model 420B to SERF Evaporation Basins**

**EPC-DO: 19-302**

**LA-UR-19-28341**

**Date:**                     **AUG 20 2019**



*Environmental Protection & Compliance  
Division*

Los Alamos National Laboratory  
PO Box 1663, K490  
Los Alamos, NM 87545  
505-667-0666

*Symbol:* EPC-DO: 19-163

*LAUR:* 19-24630

*Date:* **MAY 23 2019**

Ms. Nancy Williams  
U.S. Environmental Protection Agency, Region 6  
Compliance Assurance and Enforcement Division  
Water Enforcement Branch (6EN)  
1445 Ross Avenue, Suite 1200  
Dallas, TX 75202-2733

**Subject: Los Alamos National Laboratory, National Pollutant Discharge Elimination System, Permit No. NM0028355, Notice of Planned Change to add Evaporative Sprayer Model 420B to SERF Evaporation Basins**

Dear Ms. Williams:

The National Pollutant Discharge Elimination System (NPDES) Permit No. NM0028355 for the Nuclear Security Administration (NNSA) and Triad National Security, LLC (Triad) requires the permittee(s) to notify the U. S. Environmental Protection Agency (EPA) of any physical alterations or additions to a permitted facility that could significantly change the nature or increase the quantity of pollutants discharged (see Part III.D.1.a. Report Requirements).

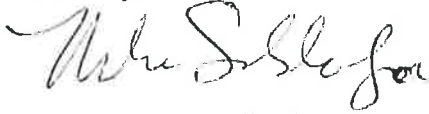
This notice of change discusses the use of a high volume spray evaporator at the Sanitary Effluent Reclamation Facility (SERF) evaporation basins located at Technical Area 60 Sigma Mesa. The basins are used to evaporate secondary wastewater generated at the SERF and the high volume spray evaporator will be used to increase the rate of evaporation at the basins by mechanically fracturing the water into 100 – 400 micron particles and lofting them into the air. There are currently five smaller floating spray evaporators in operation at the basins that serve the same function. This change does not impact the effluent discharged to the outfall or the permit conditions currently provided in the existing NPDES permit NM0028355.

EPC-DO: 19-163  
Ms. Nancy Williams

MAY 23 2019  
Page 2

Please contact Jennifer Griffin at (505) 667-6741 or Michael T. Saladen at (505) 665-6085 of the Environmental Compliance Programs Group (EPC-CP) if you have questions.

Sincerely,



Taunia S. Van Valkenburg  
Group Leader

TVV/MTS/JKG:jdm

Attachment(s): Attachment 1 NPDES-FD-005-R4, Process Schematic & Water Balance for the Sanitary Effluent Reclamation Facility (SERF)  
Attachment 2 Specifications for the 420 Evaporator Operator Manual

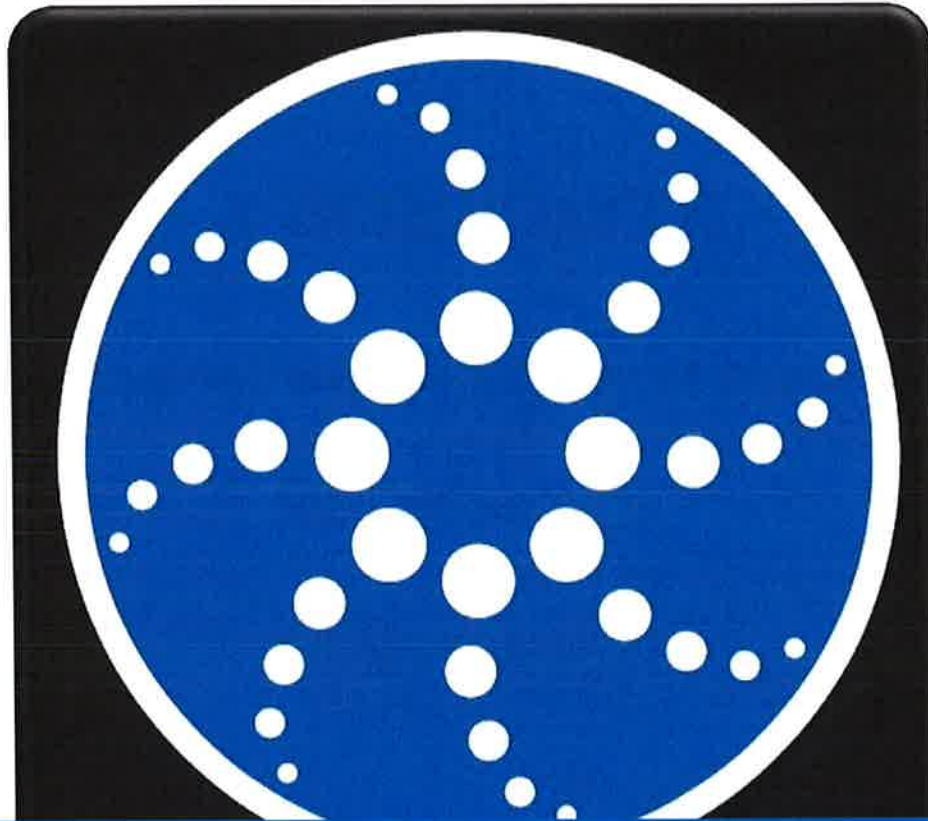
Copy: Sarah Holcomb, NMED/SWQB, [sarah.Holcomb@state.nm.us](mailto:sarah.Holcomb@state.nm.us) (Hard copy, E-File)  
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OPERATING AND PARTS MANUAL

420

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## INTRODUCTION

Your SMI Evaporative Solutions 420 Series Evaporator is one of the most technically advanced yet simple evaporation products in existence.

Thousands of hours of research, testing, and field use have gone into the design and improvements to the 420 Evaporator. SMI Evaporative Solutions is dedicated to providing our customers with superior quality products for optimum trouble-free operation.

It is very important to have a full understanding of the contents of this manual prior to assembly and operating the 420 Evaporator. This manual contains information to help you operate your 420 Evaporator in a safe manner to obtain optimal performance.

## GENERAL DESCRIPTION

The 420 Series Evaporator uses a specially designed fan to mechanically fracture water into 100-400 micron particles while simultaneously lofting them into the air. Flow rates have been optimized for efficient evaporation of the water particles, eliminating water particle fallout while producing high evaporation rates. Our goal is 100% evaporation with minimal drift.

The 420 Series Evaporator is offered in two basic mounting configurations: Floating (420F) and Stationary Boom (420B). Both designs feature simple yet rugged construction from heavy duty components. The mounting frames are offered in galvanized carbon steel, painted steel, and stainless steel depending on the application.

Because the fan atomizes the water particle, the units can operate at water pressures as low as 20 psi (1.4 bar). The orifices in the spray manifold are sized to allow large particulate to pass through without pre-filtering. The fan is constructed of type 316 stainless steel, which allows it to be used with a wide range of contaminants and water chemistry. A coated stainless steel fan is also available for special applications.



## TRAINING

The 420 Series Evaporators should be operated and maintained by personnel who have received formal safety training by a qualified instructor. Knowledge of the equipment along with general safety and operating procedures could prevent mishaps or injury and will make evaporation more effective. Each user should develop custom training programs for your specific application.

All personnel associated with this equipment should receive this training. They should have a thorough understanding of the safety procedure as well as how to operate and handle problems that may occur. They should know where the manual is located and how to use it for reference.



## SAFETY

SMI Evaporative Solutions recommends that the following steps be taken when working on or near a 420 Series Evaporator. We recommend that each site develop their own Safe Operating Procedures that at a minimum include:

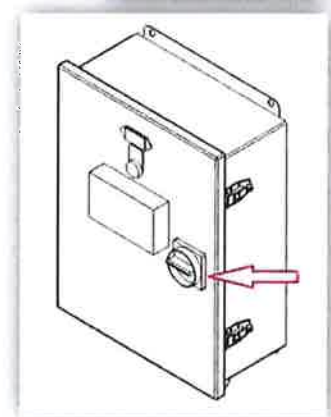
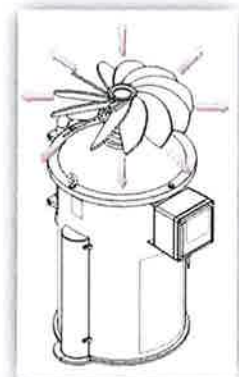
1. **Never stand beside the fan while in operation.** Particulate and ice chips (cold weather operation) are thrown from the blade due to the high centrifugal forces involved.
2. This manual should be read by all personnel associated with evaporation.
3. All personnel should be familiar with the machine and versed in your area's safety procedures.
4. Moving the machine while it is operating should be avoided. If it can't be avoided, use extreme caution.
5. Do not attempt to remove residue or ice while the machine is operating. The machine should be removed from service for maintenance.
6. The fan is very delicate. Care should be taken to avoid damaging the fan. Damage to the fan blade can cause the fan to become out of balance resulting in damage to the equipment or injury to personnel.
7. Be cautious of all hazards in the area around the equipment including: wet, slippery surfaces, high voltage power cords, equipment pinch points, and contaminant drift.
8. Use protective clothing, eye wear, head gear, and hearing protection as a precaution when working near the equipment.
9. Determine if appropriate signage or fencing of machine is needed and in place.

## GETTING TO KNOW YOUR EVAPORATOR

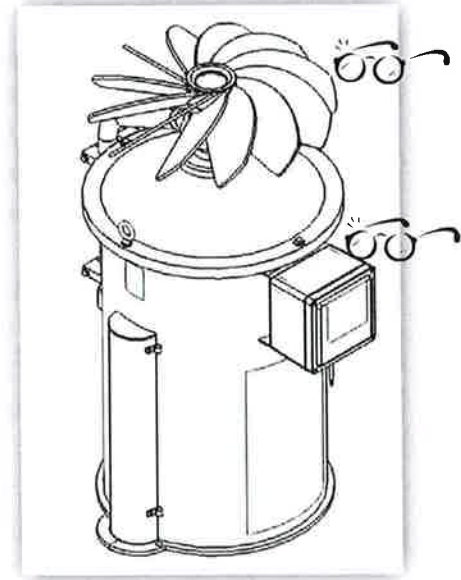
The 420 Series Evaporator is a simple machine that will provide years of use if maintained safely and properly. The units feature a high speed cast stainless steel fan that rotates at speeds up to 3,600 RPM. Because of the high speeds involved, it is important to keep the blades of the fan free of solids – salts, ice, or other debris – to keep the fan properly balanced.

By nature of the design, the fluid sprayed against the blade will propel from the blade due to centrifugal force. The fan is left open to atmosphere for proper dispersion of particle into the atmosphere. Caution should be taken whenever working near the equipment while operating. SMI recommends that each site develops safe operating procedures for working with this equipment. At a minimum, the user should follow these basic steps:

- ◆ Prior to inspecting or servicing the equipment, **the equipment panel should be turned Off, Power Locked out, and a tag applied stating that the machine is being inspected or serviced.**



- ◆ Once locked out, the machine should be moved to a safe position for inspection or service. A 420 Boom mount can be lowered in either direction for service. See the steps outlined in the Installation section. A 420 Floater should be retrieved from the pond and brought to shore.
- ◆ Inspect the blade for solids build up. If solids are present, they should be removed with a high pressure washer. A heated high pressure washer works well to loosen and remove all debris.
- ◆ Inspect the Spray Manifold for clogged nozzles or damage. If clogged, clean with a high pressure washer. It may be helpful to remove the plug to flush solids out of the spray.
- ◆ Rotate the fan blade to feel for bearing wear. Excessive build-up of solids can cause bearing damage.
- ◆ Check the vibration sensor cord for damage. If the vibration switch has tripped and the fan blade is clear of solids without signs of damage, open the protective housing to inspect the vibration switch.



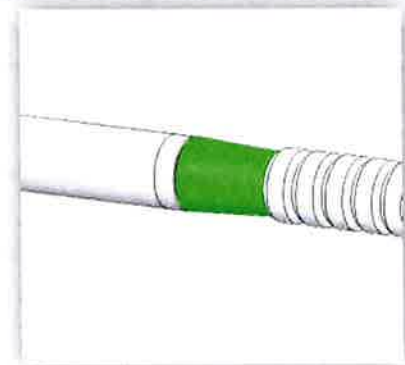
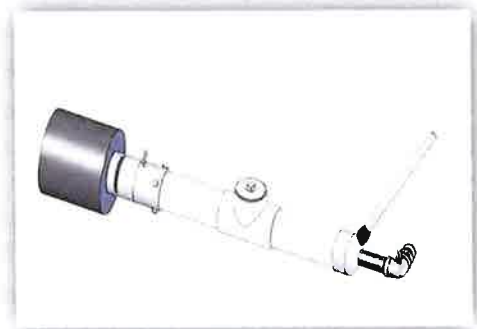
420F (Float Models) are equipped with a submersible pump and with junction box to terminate the motor leads and vibration switch leads with the supply cords routed from shore. The junction box, cords, and pump should be inspected periodically as part of your maintenance program.

To inspect the submersible pump:

- ◆ Remove the pump from the water by lifting it by its chains.
- ◆ Inspect the housing, power conduit, and plumbing for damage
- ◆ Inspect the pump housing inlet filter for clogs.

If the pump housing inlet filter is clogged with debris, or if you feel the pump output is insufficient, the inlet filter and pump inlet should be removed. To remove the filter from the housing, you will need to:

- ◆ Unscrew the filter from the pump housing
- ◆ Remove the cleanout cap on the T.
- ◆ Pressure wash the pump housing filter, pump inlet thru the cleanout T to remove debris.
- ◆ Inspect the pump inlet (shaded area in image) and clean as necessary, this is visible thru the cleanout T





- Re-assemble in reverse order.

Though the Evaporator fan blade, control panel and pump (when equipped) are the critical components for proper evaporator operation, you should periodically clean, inspect, and maintain your entire evaporator for long life and to limit down time.

## POSITIONING OF EVAPORATOR

Several factors should be considered when choosing the location of evaporators. Consider the containment area size, contaminate type, prevailing wind direction, and containment areas surroundings. SMI Evaporative Solutions can assist you with developing a site plan prior to installation to maximize the performance of your evaporation system.

Ideally, water and power supply lines should be 150' to 200' upwind from a 420 Evaporator. With the electrical control panel and water shut off at a sufficient distance from the unit, the operator can start and stop the machine while staying dry and maintaining a safe distance from the rotating evaporator blade.

### 420B Series Evaporator Position

A 420B Series Evaporator should be set up within the containment area. This is so any un-evaporated liquid and contaminants are collected and concentrated within the containment area (pond or land area designated and permitted for containment).

Where multiple Evaporators are used, units should be placed at 50' to 100' intervals along a line perpendicular to the prevailing winds.

### 420F Series Evaporator Position

The 420F Evaporator should be set up in the center of the pond. This is so any un-evaporated liquid and contaminants are collected and concentrated within the containment area (pond or land area designated and permitted for containment).

Where multiple Evaporators are used, units should be placed at 50' to 100' intervals along a line perpendicular to the prevailing winds

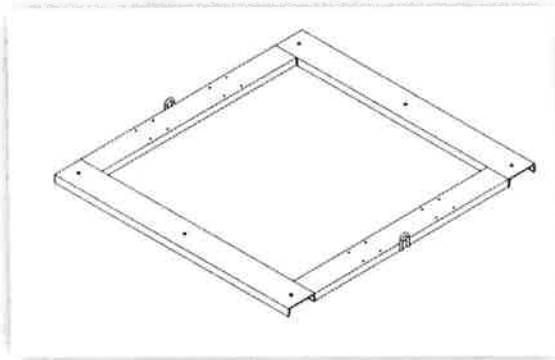
## INSTALLATION

### 420B SERIES EVAPORATORS

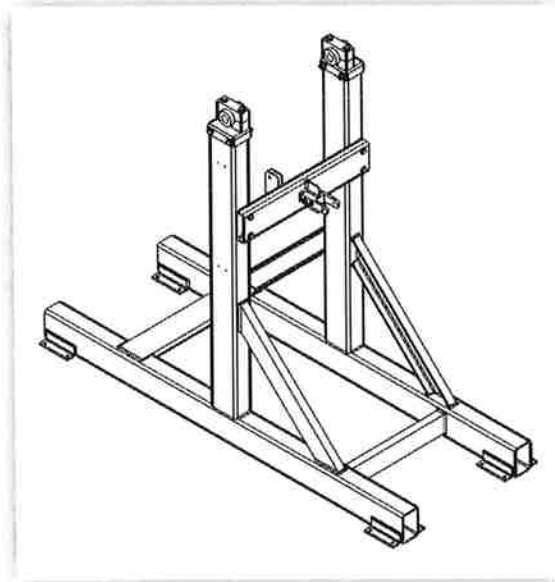
SMI Evaporative Solutions 420B Series Evaporators are shipped disassembled so they can fit on common flat beds, in containers, or in a box truck. The machine is pre-assembled as sub-assemblies that can be assembled onsite by following these steps.

### 420B SERIES COMPONENT SUB-ASSEMBLIES

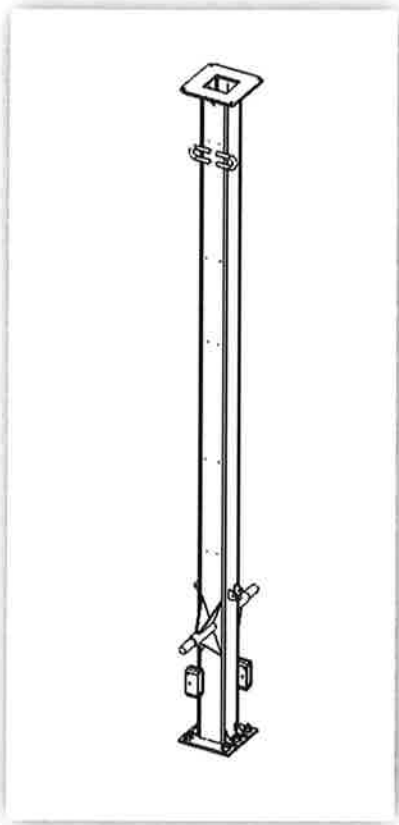
The equipment typically ships as sub-assemblies to conserve shipping space. The sub-assemblies vary depending on order size and shipping method. Common sub-assemblies are:



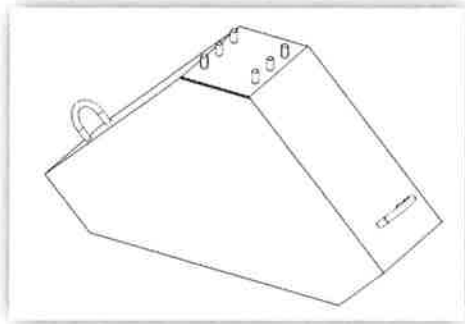
420B Base  
Platform



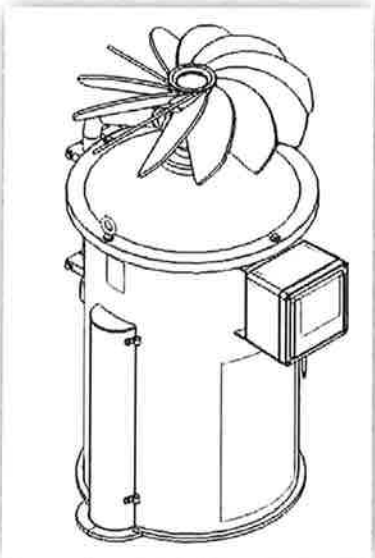
420B Upright  
Frame



420B Boom

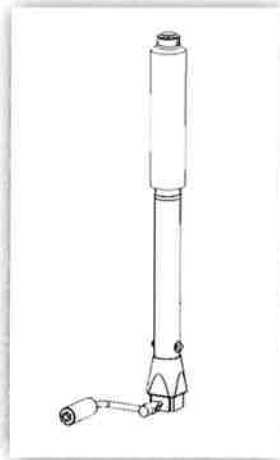


420B Counter-weight

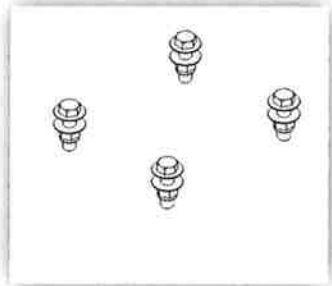


420 Evaporator Head Assembly

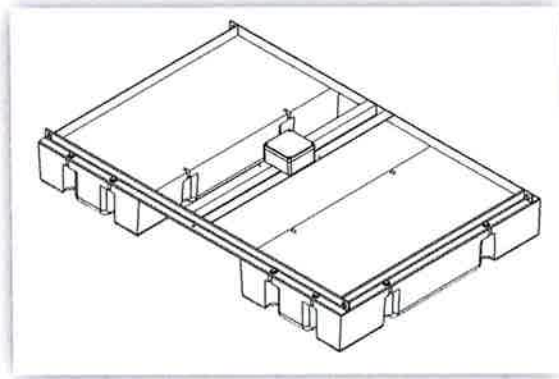
420B Jack Assembly



420B Fastener Kit

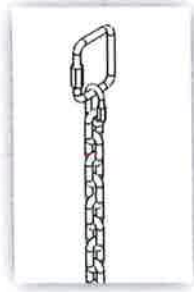


Hoses, power cords, control panels and other accessories will also be packaged with the equipment. These components vary depending on equipment type. SMI Evaporative Solutions offers several machine control options. If you have ordered a 420B Boom Series Evaporator with submersible pump, your order should also include:

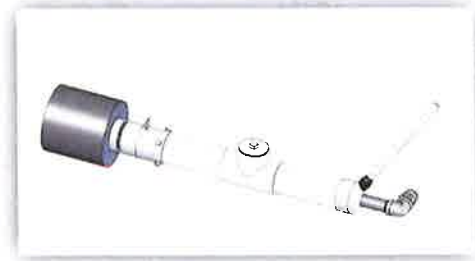


420B Float  
Pump Pontoon  
Assembly

420B Float  
Pump Assembly

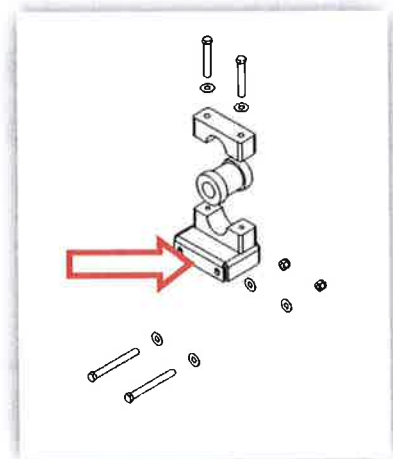


420B Float  
Pump Chain  
Assembly

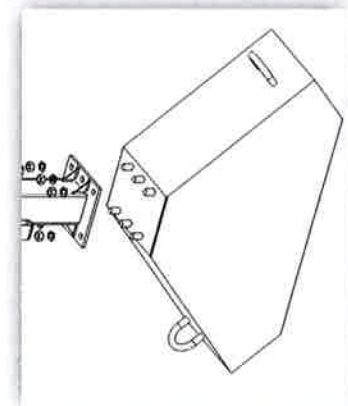
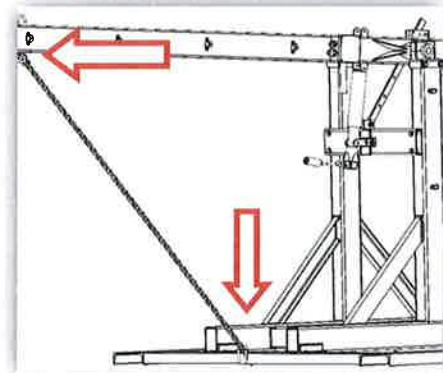
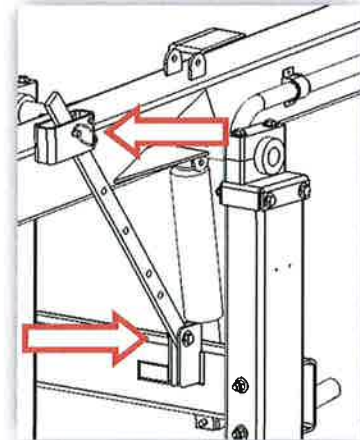
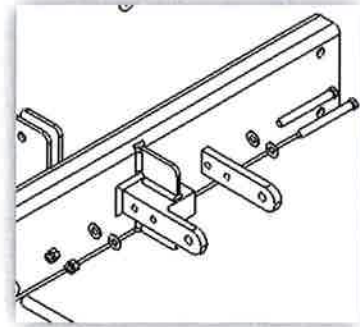


To assemble the 420B Series Evaporator, begin by gathering the components and locating the Base Platform on a level surface – working location preferred. Refer to the Parts List drawings for appropriate part numbers and fasteners.

- ◆ Prepare a 9ft x 9ft (2.7m x 2.7m) pad for the base frame. The frame should be level within 5°.
- ◆ Place the Upright Frame on the Base Platform and assemble with included fasteners.
- ◆ Locate the bushing blocks mounted to the top of the Upright Frame posts and remove the two screws from the top block. Remove the top block and bushings.
- ◆ Locate the Boom and assemble the bushings to the Boom.
- ◆ Lower the Boom onto the bushing blocks.
- ◆ Replace the upper bushing blocks and assemble with the fasteners previously removed.
- ◆ Locate the Jack Assembly.

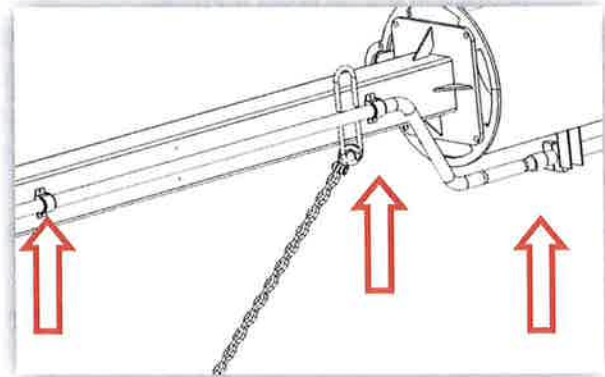


- ◆ Assemble the rod end (opposite the handle end) to the boom with the appropriate fasteners detailed in the Parts List drawings.
- ◆ Remove the jack pivot tab from the Upright Frame Assembly (as shown in illustration to the right).
- ◆ Place the Jack Assembly trunnion shaft into the pivot block and replace the pivot tab, securing with the included fasteners.
- ◆ The boom should now be stabilized by the jack. The jack can be used to raise and lower the boom.
- ◆ Locate the Lock Bar, Lock Bar Pin, and fasteners to attach the lock bar to the Upright Frame
- ◆ The Lock Bar attaches to the Upright Frame through a slotted hole. Before attaching to the Upright Frame, locate the hole at the opposite end and attach the Lock Bar to the Boom by placing the Lock Bar inside the Boom tube and Inserting the Lock Bar Pin through the Boom tube and the Lock Bar. Once the upper end is pinned, Swing the Lock Bar into position to attach to the Upright Frame tabs. Use the Jack to raise or lower the boom to align the Lock Bar slot with the Upright Frame tab.
- ◆ With the Jack mounted and the Lock Bar pinned into position, locate the long safety chain that will stretch from the boom near the Head mounting flange back to the Base Platform. Hook the chain to the Boom and Platform through the loops provided. This step is necessary to prepare for installing the concrete counter-weight.
- ◆ Locate the Concrete Counter-weight and lift with a machine to mount it to the Boom flange (short end of Boom from pivot). Attach the Counter-weight with the included fasteners. Do not remove the machine supporting the counter-weight.
- ◆ Locate the Head Assembly. Lift the Head Assembly into Mounting Position. Position the Head Assembly on the Boom Flange so that the motor conduit is oriented on the same side of the boom as the Junction Box. The boom is shipped with vibration clamps for water hose and motor conduit. There are typically four motor conduit clamps and three water hose clamps. The motor conduit clamps are typically smaller diameter clamps than the water hose.

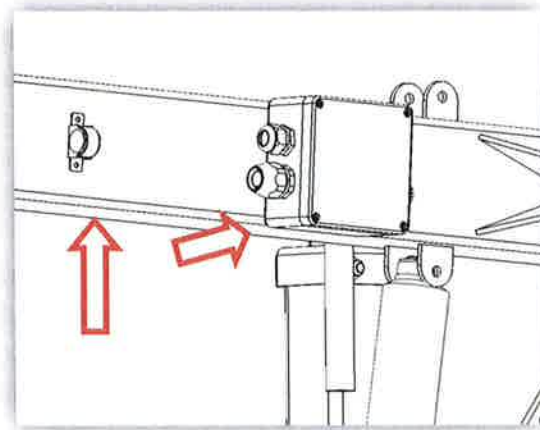




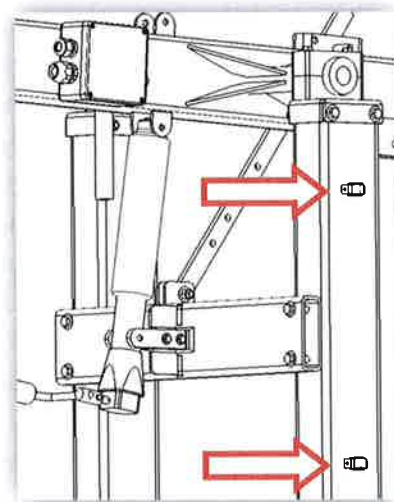
- ◆ Once the Head Assembly is secured with the supplied fasteners, the water hose can be attached.
- ◆ Locate the water hose and route it through the hose clamps. Attach the water hose to the spray manifold on the Head Assembly.
- ◆ With the water hose assembled, the Evaporator is now ready to be wired.
- ◆ All electrical work should be performed by a certified electrician and completed to satisfy electrical codes specific to the location and equipment type.



- ◆ Locate the Fan Motor conduit and route the conduit through the vibration clamps.
- ◆ Locate the Junction box and remove the cover.
- ◆ The junction box is supplied with a water-tight conduit fitting and a water-tight cord fitting for the vibration switch. Insert the conduit into the conduit fitting and secure the conduit with the fitting cap.



- ◆ Route the Vibration switch cable along the conduit and into the water-tight cord grip. Secure the vibration switch wire with the cord grip fitting.
- ◆ Terminate the junction box to the supplied electrical schematics.
- ◆ Locate the main power cable (from Boom Junction box to Control Panel) and route it through the clamps located on the Upright Frame.
- ◆ Terminate the power supply cord in the junction box to the supplied electrical schematics.
- ◆ Close and seal the junction box.
- ◆ Continue to wire the power supply cord to the control panel before connecting the control panel to power. Once the control panel is wired to the evaporator power supply cord, connect it to the power source (with power source locked out).

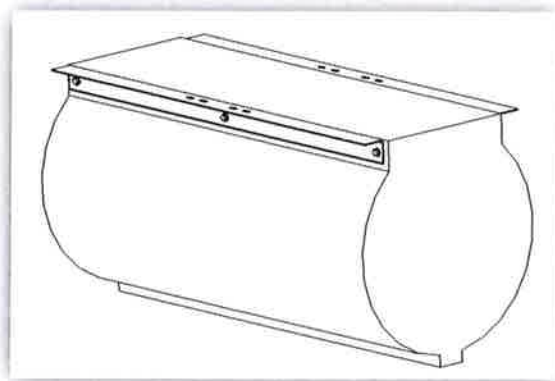


### 420F SERIES EVAPORATORS

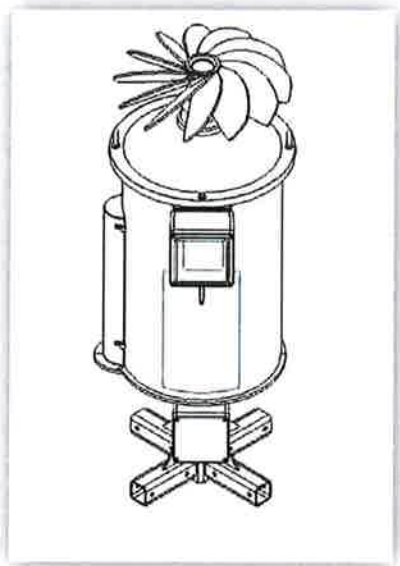
SMI Evaporative Solutions 420F Series Evaporators are shipped disassembled so they can fit on common flat beds, in containers, or in a box truck. The machine is pre-assembled as sub-assemblies that can be assembled onsite by following these steps.

#### 420F SERIES COMPONENT SUB-ASSEMBLIES

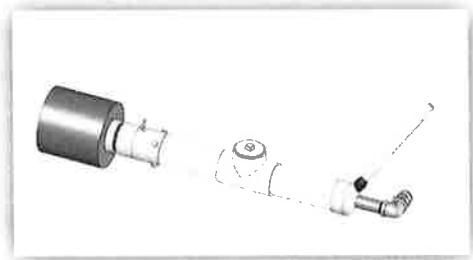
The equipment typically ships as sub-assemblies to conserve shipping space. The sub-assemblies vary depending on order size and shipping method. Common sub-assemblies are:



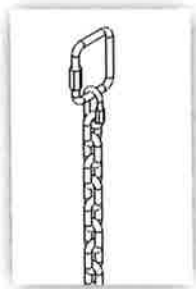
420F pontoons (4x)



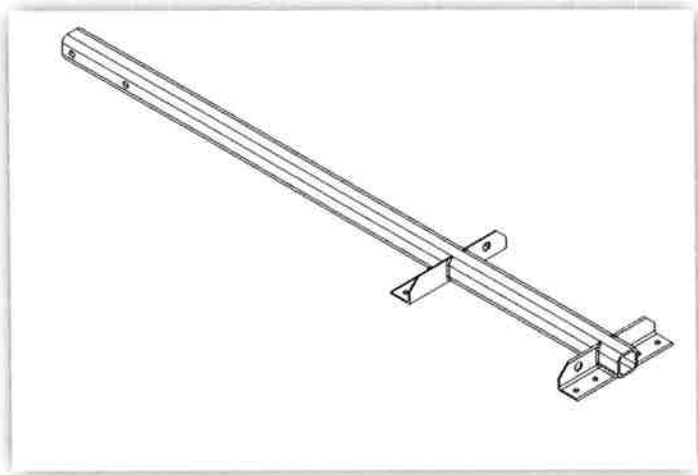
420F Evaporator Head Assembly



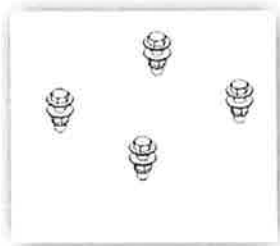
420F Pump  
Assembly



420F Pump  
Chain Assembly



420F Mounting  
Arm Assembly  
(4x)

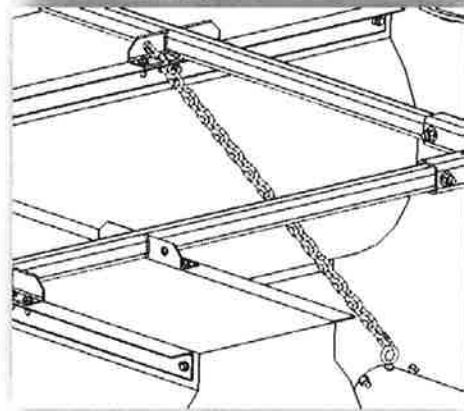
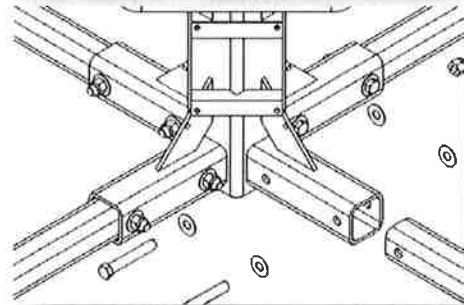
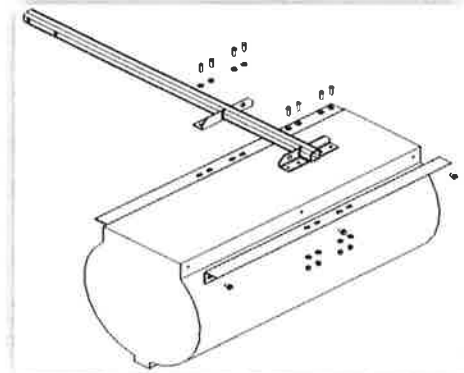


420F Fastener  
Kit

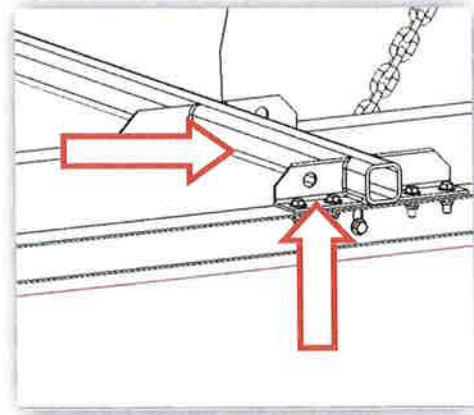
Hoses, power cords, control panels and other accessories will also be packaged with the equipment. These components vary depending on equipment type. SMI Evaporative Solutions offers several machine control options.

To assemble the 420F Series Evaporator, begin by gathering the components and locating the Pontoons on a level surface. Refer to the Parts List drawings for appropriate part numbers and fasteners.

- ◆ Locate 4x Pontoons, 4x Mounting Arms, and fasteners. Place the Mounting Arm on the Pontoon aligning the holes in the arm over the slots in the Pontoon brackets. Attach the Arm to the Pontoon. Repeat for all pontoons and arms. Torque to 25ft lbs.
- ◆ Lift the 420F Head Assembly by the lifting eyes attached to the Head Cover. Insert the Mounting Arms into the Square Tubes on the 420F Head Frame. Align the holes and secure with fasteners. Torque to 30ft lbs.
- ◆ Lower the assembly to the ground and remove the lift from the lifting eyes.
- ◆ Locate the pump and hang the pump from the Float Arms with the chain, attaching the oval-shackle to hang from the hole in the float arm.
- ◆ The assembly can now be wired.
- ◆ Open junction box covers – junction box is located just above where the Float Arms attach to the Head Mounting Bracket.
- ◆ The junction box is equipped with (6) cord and conduit grips. The vibration switch and motor leads are pre-wired from the factory. The third cord grip, with strain relief, will hold the main power cord from control panel to machine. Locate the 10/7 & 18/7 multi-conductor cord and route it through the strain relief into the junction box. The next cord grip terminates the pump cord leads (conduit fitting) and the pump power cord from control panel to junction box (strain relief). Feed the pump leads through the conduit fitting and secure the conduit into the water-tight conduit fitting. Feed the pump power cord through the strain relief fitting and secure the cord with the fitting.
- ◆ Terminate the cords according to the electrical schematics provided with the machine.



- ◆ Once the cords are terminated, connect the hose to the spray manifold and pump. Some units are equipped with a ball valve for manual control water flow to the spray manifold, some are not (automated control of pump through Variable Frequency Drive).
- ◆ Unravel the power cords and stretch them out so they do not tangle. Some units are now provided with optional buoys. If using buoys, assemble them onto the cords spacing approximately 10-15ft apart.
- ◆ Attach straps to all four Float Arms or hook through the hole in the end of the Flat Arms. Connect the straps or lifting chains together above the fan and attach to your lifting device.
- ◆ If possible, attach the anchoring device to the holes in the float arms. The anchoring system should prevent the evaporator from moving too far on the water surface and prevent the evaporator floats from rotating.
- ◆ Lift the unit from the ground until the pump hangs clear of the ground.
- ◆ Carefully place the evaporator in the water making sure the pump is low enough to be below the water level, but not so low that it touches the bottom of the pond.
- ◆ Drag the evaporator into position across the surface of the water using the anchoring system.
- ◆ Terminate the power cords in the control panel per the electrical schematics.
- ◆ Connect the control panel to the power source.
- ◆ Turn the control panel disconnect on.



## REQUIREMENTS

Electrical:     460 Volt, 60 Hertz, 3 Phase 60 Amp Service  
                   415 Volt, 50Hz, 3 Phase, 63Amp Service  
                   (other electrical voltages and cycles available upon request)

Water:           Up to 45 gpm @ 100 psi, 20 psi minimum



## PRE-START CHECK LIST

Once the machine is in position, assembled, and wired, it is important to perform a final inspection prior to putting the evaporator into service. With the electrical power locked and tagged out:

1. Check the fan to verify it can rotate freely and is free of mineral deposits or ice.
2. Verify that the water hose is securely attached to the pump and to the spray manifold.
3. Verify that hoses and cords are out of the path of traffic areas.
4. Verify the wind direction and adjust the head to the appropriate angle for the wind conditions (Boom Series only).
5. Remove the tag and lock and power on the electrical station and control panel.
6. From a safe distance, briefly turn the fan motor on to verify fan direction. The fan should rotate counter clockwise when viewed from motor end of fan blade, or clockwise when looking into the fan blade.
7. With fan off, start pump and verify that water is flowing from the spray manifold. Check the amp draw of the pump to verify that it is spinning in the proper direction. Amp draw should be:

Once the fan rotation and pump function have been verified, the unit is ready to operate. Always maintain a safe distance when the equipment is operating.

## START-UP PROCEDURES

The start-up procedures differ between a manually controlled or automated 420 Evaporator. Automated equipment should always be considered active. Weather and programming conditions are placed on the equipment. If those conditions are met, the evaporators could start without warning. It is important to always be aware of this fact and remove all equipment from energy sources when servicing or inspecting them. Always maintain a safe distance from the equipment when operating the equipment.

### MANUAL START-UP

Manual start-up relies heavily on careful observation by the operator. Visual inspection of the fan for residue or ice is suggested prior to start-up. Once verified, start the fan motor. Observe the fan to make sure that the fan is spinning properly and does not appear to be projecting solids or appear out of balance.

Add water. Depending on the equipment type, this could be as simple as pushing start on the control panel to operate the pump, or it could involve opening a hydrant or valve to supply water from a central pumping station. Regardless of the method, it is important to observe how much water is being supplied, what direction the wind is taking the evaporative mist cloud, and how much fallout is generated. The goal is to adjust the water flow as fine as possible to achieve 100% evaporation of the water with minimum drift and no water fallout back to the water source.

The flow can be regulated via VFD (if equipped), ball valve (if equipped), or through the main hydrant or valve associated with central pumping.

## AUTOMATED START-UP

Automated equipment can start at any time if the programming conditions are met. The program will start the fan and pump and can regulate the flow using a VFD if equipped. SMI Evaporative Solutions offers several controls packages that efficiently and safely operate the equipment. Equipment automated with a VFD drive on the pump can regulate flow depending on wind conditions, temperature, and humidity.

## OPERATION

Operation of the 420 Evaporator in above freezing temperatures is a simple matter of starting the motor and turning on the water. The maximum flow rate for any unit should be determined by the amp meter on the control panel. Full load for the 25 HP motor is 28 amps. This should not be exceeded. Amperage will increase with flow rate.

When operating in freezing temperatures, the 420 Evaporator will probably make some snow. This is actually testimony to the fact that evaporation is still taking place. The powerful cooling effect of evaporation is snap freezing small droplets of water which become the seeds that snow particles build on.

Operating in freezing temperatures will require greater operator input. Precautions against freezing water lines should be taken. Water and power lines should be clearly marked so they will not be damaged if snow clearing operations have to be performed.

During temperatures below freezing, flow rates to each 420 Evaporator should be maximized to prevent ice build up on the fan blades. Ice buildup will cause vibration and possible damage.

Visual inspections should be increased to at least 6 times daily during below freezing temperatures with PREFERENCE TO HOURLY INSPECTIONS.

The operator should make sure that the spray holes are free of any blockage as the resultant reduction of flow will cause ice buildup.

## SHUT-DOWN PROCEDURES

Trouble-free start-up of your 420 Evaporator relies upon proper shutdown procedure. In extreme cold conditions, it is essential these procedures be performed as quickly as safety permits.

1. If temperatures are below freezing, turn off the fan motor. Shut off the water at the hydrant (420B Series). Go to Step #3.
2. If temperatures are above freezing, turn off water at the hydrant (420B Series). Shut off the fan. Go to Step #3.
3. Disconnect the hose and drain it to the side, if possible.

The water feed hose and pump on a 420F Series is self draining for cold weather operation.

## MAINTENANCE

### DAILY MAINTENANCE

Conduct visual inspection from a distance so as not to get wet. Check for vibration, scale build-up or decrease in water flow. Vibration is usually caused by build-up of scale or ice on the blade which has to be cleaned off. Low flow is usually caused by large particles blocking the spray holes. If this is the case, clean out by back flushing with water after unhooking the water intake from the manifold.

### 420B SERIES MAINTENANCE

If a problem is observed, disconnect power and water, remove the boom pin from the locking bar and lower the gun. Once the unit is lowered, be certain to attach the maintenance position safety chain between the boom arm and frame unit prior to performing any work on the machine. Also, block the concrete counter weight up if the head of the gun has to be removed for any reason.

### 420F SERIES MAINTENANCE

If a problem is observed, disconnect power, remove the pump from the water. Once the unit is prepared, bring the unit ashore for maintenance.

### WEEKLY MAINTENANCE

Disconnect power and water and inspect and clean fan, spray ring, and fasteners.

### ANNUAL MAINTENANCE

De-scale motor cooling fins if necessary.

## TROUBLE SHOOTING

### Ice-Covered Machine

Ice build up on a 420F can cause the unit to become unstable and sink or tip over. SMI recommends that during cold temperatures, when ice can be formed, that the 420F not be used until temperatures warm.

Ice can also build up on a 420B Series Evaporator running at cold temperatures and low flow. If ice has built up on the fan, lower the boom to 45° or less, increase the water flow to “wash” off the ice build-up. If the ice will not “wash” off, try turning the fan off, and continue to flow the water over the fan. If this does not remove the ice, consider shutting the evaporator down until temperatures warm.

Contact SMI for suggestions on operating in freezing temperatures.

### Fan Rotation

If the fan rotates in reverse, the fan motor phasing is incorrect. If each station is checked before the season start-up, this problem should be eliminated. Phasing can be changed by switching any two of the power supply lines at the top of the main disconnect in the control panel. CAUTION: Do not change any wires or open a control box or electric station with the electric supply turned on. Disconnect power supply to be safe.

**420B SERIES WARNINGS**

**Evaporator Operating Locking Bar Must be in Position When Operating!**

**Before Lowering Evaporator, Power Must Be Turned Off and Locked Out by Person Working on Unit!**

**Evaporator Maintenance Position Safety Chain Should be Attached to Boom Arm and Base Frame Before Performing Any Maintenance!**

**Before Removing Motor And/Or Fan Assembly From Boom, Counter Weight Should Be Securely Blocked Up To Prevent Over Loading Jack Or Creating Unbalanced Situation!**

**It is the responsibility of the operator to ensure that any fallout from the 420B Evaporator is within the catchment area and that all designated Federal and State environmental regulations are adhered to.**

## **420F SERIES WARNINGS**

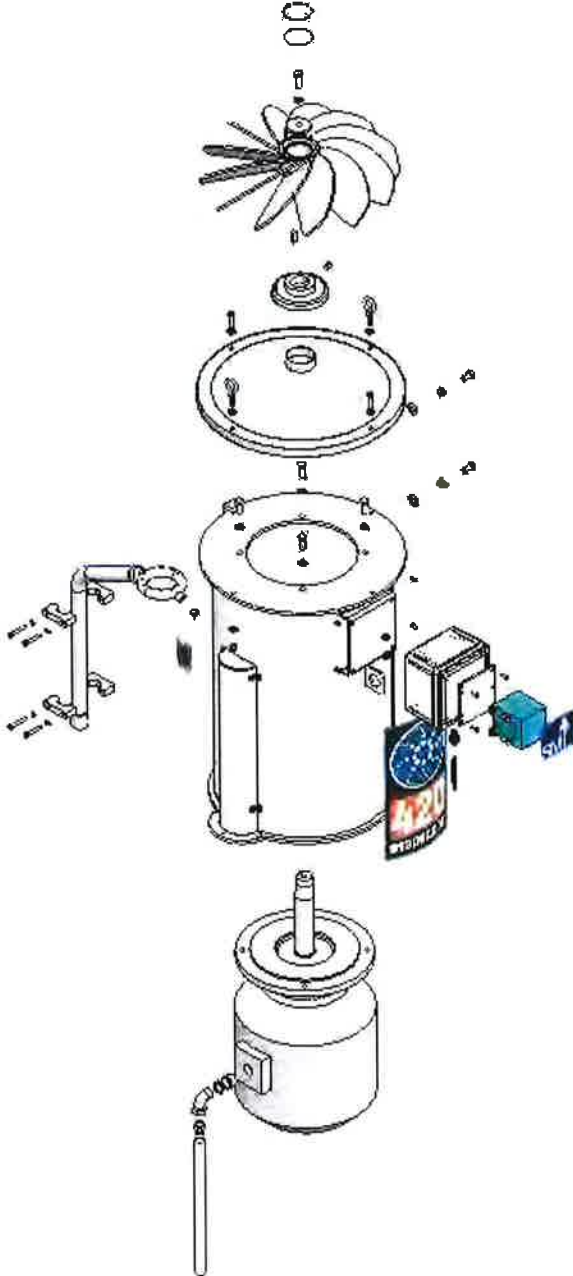
**Before Maintaining Evaporator, Power Must Be Turned Off and Locked Out by Person Working on Unit!**

**It is the responsibility of the operator to ensure that any fallout from the 420F Evaporator is within the catchment area and that all designated Federal and State environmental regulations are adhered to.**

**Operating the 420F in below freezing temperatures can result in ice covering the machine. Ice build-up can cause instability and possibly sinking of the unit.**



**PARTS LIST**

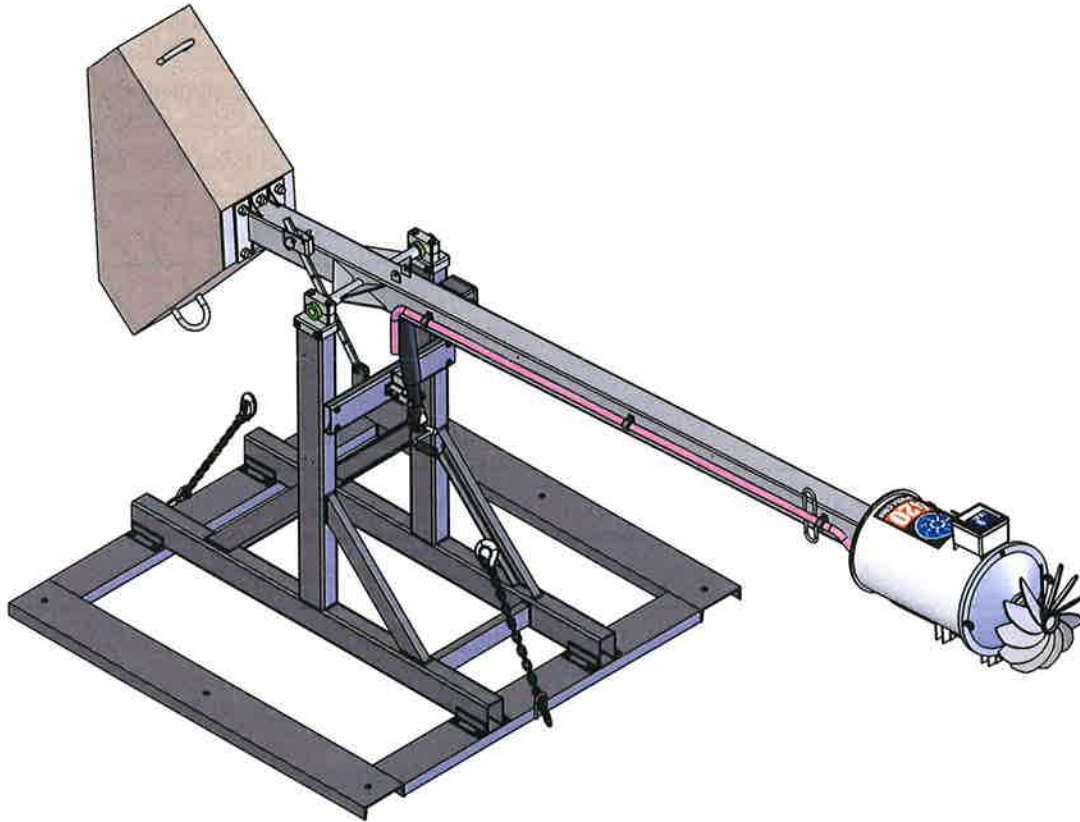


## 420 EVAP 460V/60HZ, 2HP BOOM ASM

ITEM NO.	QTY.	PART NUMBER	Rev	DESCRIPTION	INITIALS
1	1	420 Boom Frame		420F BOOM FRAME ASM	
2	1	420-EVAP-JACK		420 EVAPORATOR LINEX JACK COMPONENTS	
3	1	420-EVAP-BOOM		420 EVAPORATOR BOOM COMPONENTS	
4	1	340304-6		180 DEG EVAPORATOR BOOM LOCK BAR	
5	1	340304-2		EVAP LOCK BAR PIN ASSY	
6	2	.50 Nom ID		SS FLAT WASHER	
7	1	1/2-13 THD		HEX LOCK NUT, STAINLESS STEEL NYLON INSERT	
8	1	1/2-13 x 2" LG		STAINLESS STEEL HEX HEAD SCREW	
9	1	420-EVAP-HEAD		420 EVAPORATOR HEAD ASM	
10	1	27-420-BOOM		420 BOOM J-BOX ASM	
11	2	33-003000		5/16 CLEVIS SLIP HOOK WITH LATCH	
12	1	33-003001		5/16 ZINC COATED CHAIN (FT)	
13	2	33-003004		180 DEG COUNTER WEIGHT SAFETY CHAIN ASM	
14	3	23-001100		1-3/8" OD SS CUSHION HOSE CLAMP	
15	2	23-001101		3/4" SS CUSHION HOSE CLAMP	
16	4	23-001099		1-1/8" SS CLAMP 6/4 SOW CORD	
17	1	31-002257		1" x 180" SINGLE WIRE HOSE ASM	

WEIGHT: LB





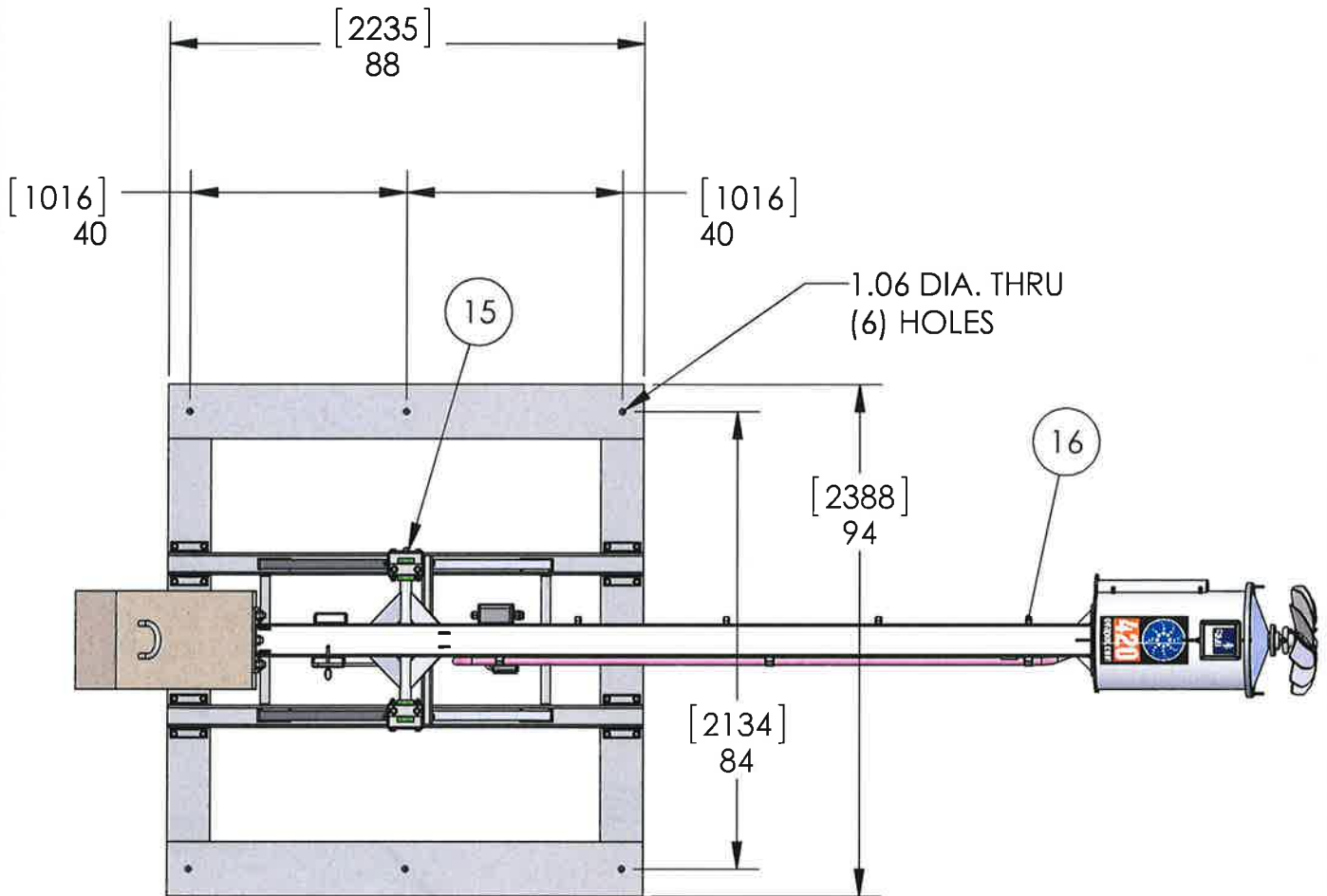
# 420B SERIES EVAPORATOR, 180 DEG GALV FRAME ASM

WEIGHT: 3895.57 LB



**Evaporative  
Solutions**

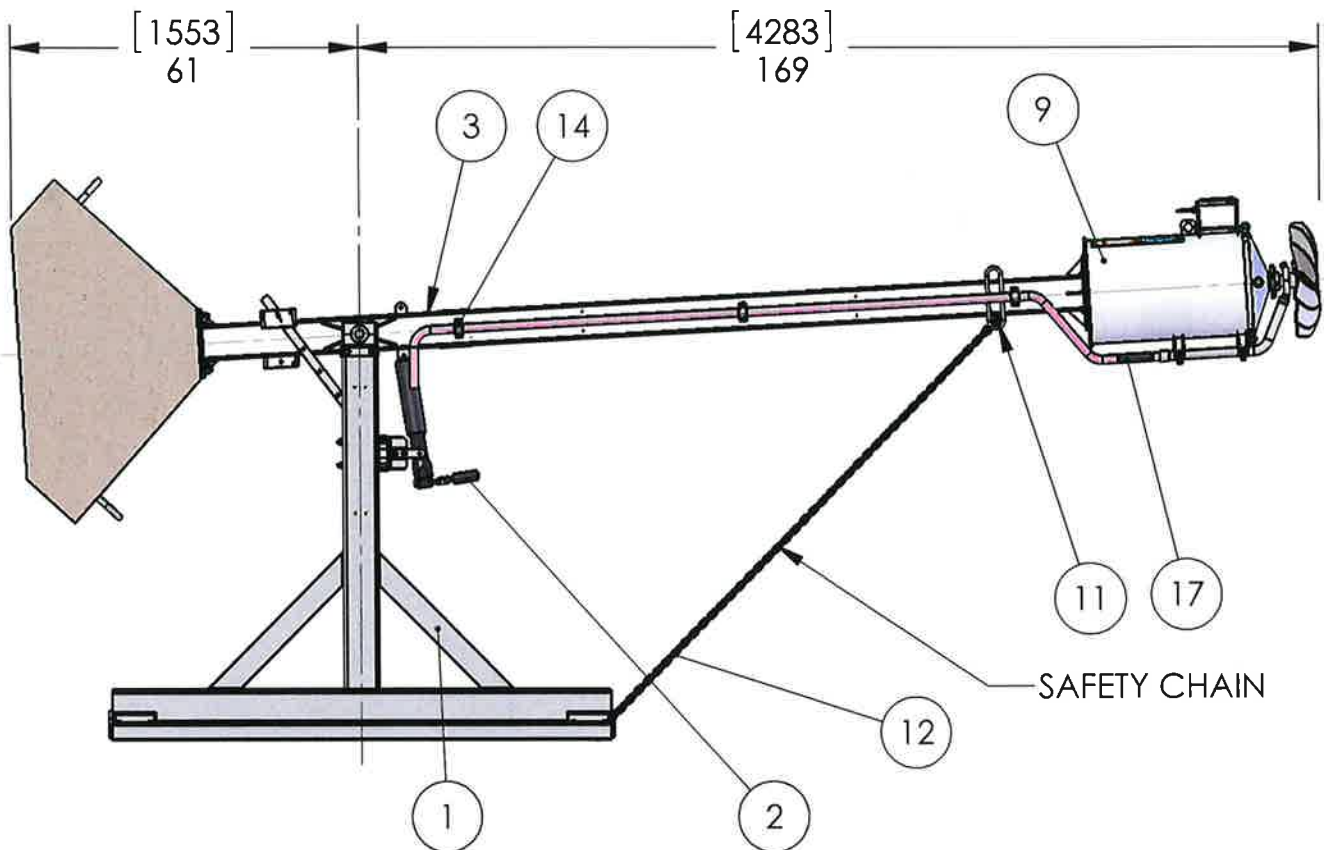
**E V A P O R . C O M**



# 420B SERIES EVAPORATOR, 180 DEG GALV FRAME ASM

WEIGHT: 3895.57 LB





# 420B SERIES EVAPORATOR, 180 DEG GALV FRAME ASM

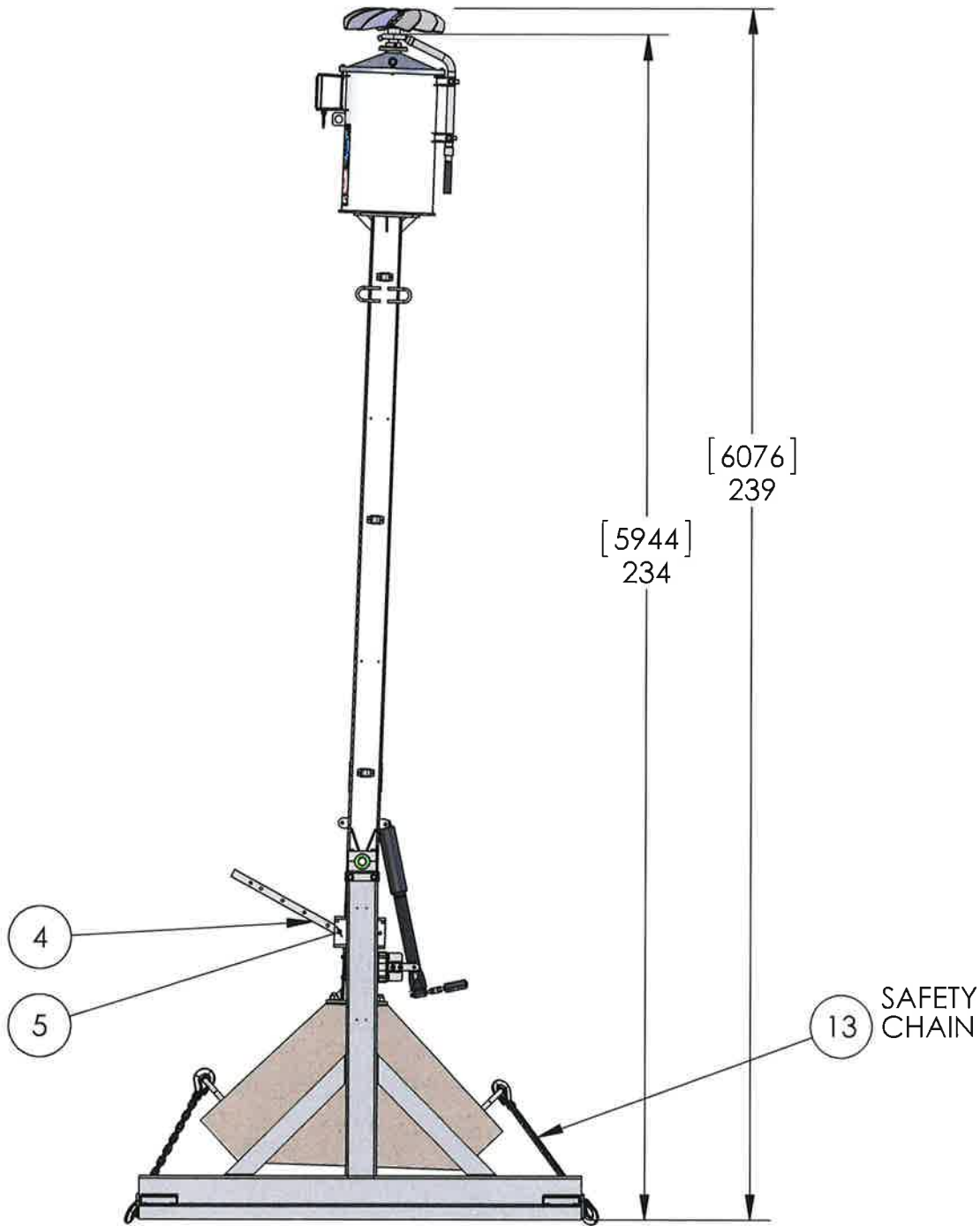
WEIGHT: 3895.57 LB



**Evaporative  
Solutions**

**E V A P O R . C O M**





# 420B SERIES EVAPORATOR, 180 DEG GALV FRAME ASM

WEIGHT: 3895.57 LB

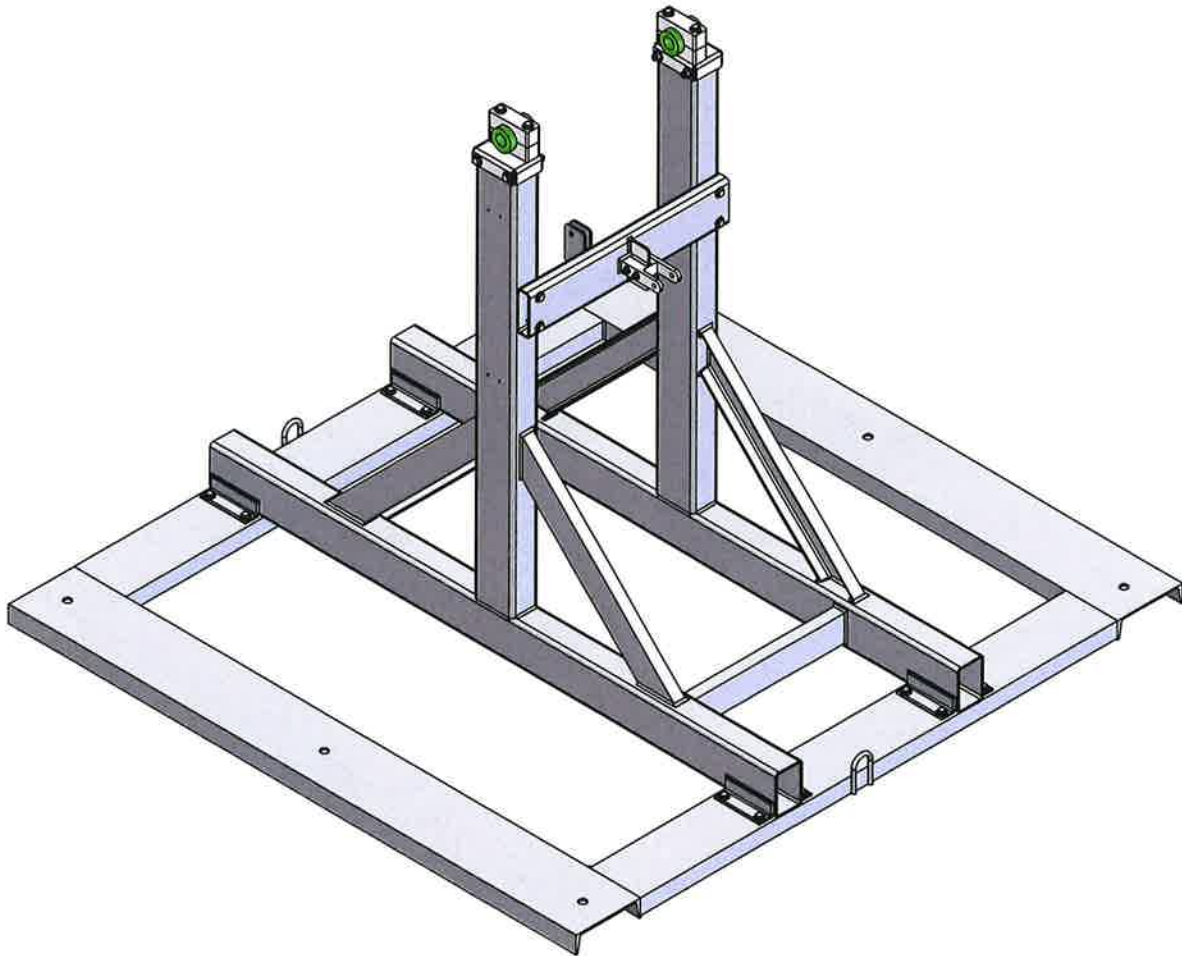


## 420F BOOM FRAME ASM

ITEM NO.	QTY.	PART NUMBER	Rev	DESCRIPTION	INITIALS
1	1	340500-3		180 DEG. EVAP PLATFORM	
		340500-3-COAT		COATED EVAP PLATFORM	
2	1	340400-6		180 DEG EVAPORATOR SUPPORT FRAME	
		340400-6-COAT		COATED 180 DEG EVAPORATOR SUPPORT FRAME	
3	2	340401-2		2002 EVAPORATOR UPPER PIVOT BLOCK	
4	2	340402-2		LOWER PIVOT BLOCK ASSEMBLY	
5	2	340403-1		NYLON PIVOT BUSHING	
6	1	340400-5		180 DEGREE EVAPORATOR JACK BRACKET ASSY	
		340400-5-COAT		COATED 180 DEG EVAPORATOR JACK BRACKET ASSY	
7	1	340400-4		JACK BRACKET TAB	
8	4	.38 Nom ID		SS FLAT WASHER	
9	52	.50 Nom ID		SS FLAT WASHER	
10	2	3/8-16 x 4" LG		STAINLESS STEEL HEX HEAD SCREW	
11	2	3/8-16 THD		HEX LOCK NUT, STAINLESS STEEL NYLON INSERT	
12	24	1/2-13 THD		HEX LOCK NUT, STAINLESS STEEL NYLON INSERT	
13	16	1/2-13 x 1-3/4" LG		STAINLESS STEEL HEX HEAD SCREW	
14	4	1/2-13 x 5-1/2" LG		STAINLESS STEEL HEX HEAD SCREW	
15	4	1/2-13 x 3-3/4" LG		STAINLESS STEEL HEX HEAD SCREW	
16	4	1/2-13 x 9" LG		STAINLESS STEEL HEX HEAD SCREW	

WEIGHT: LB

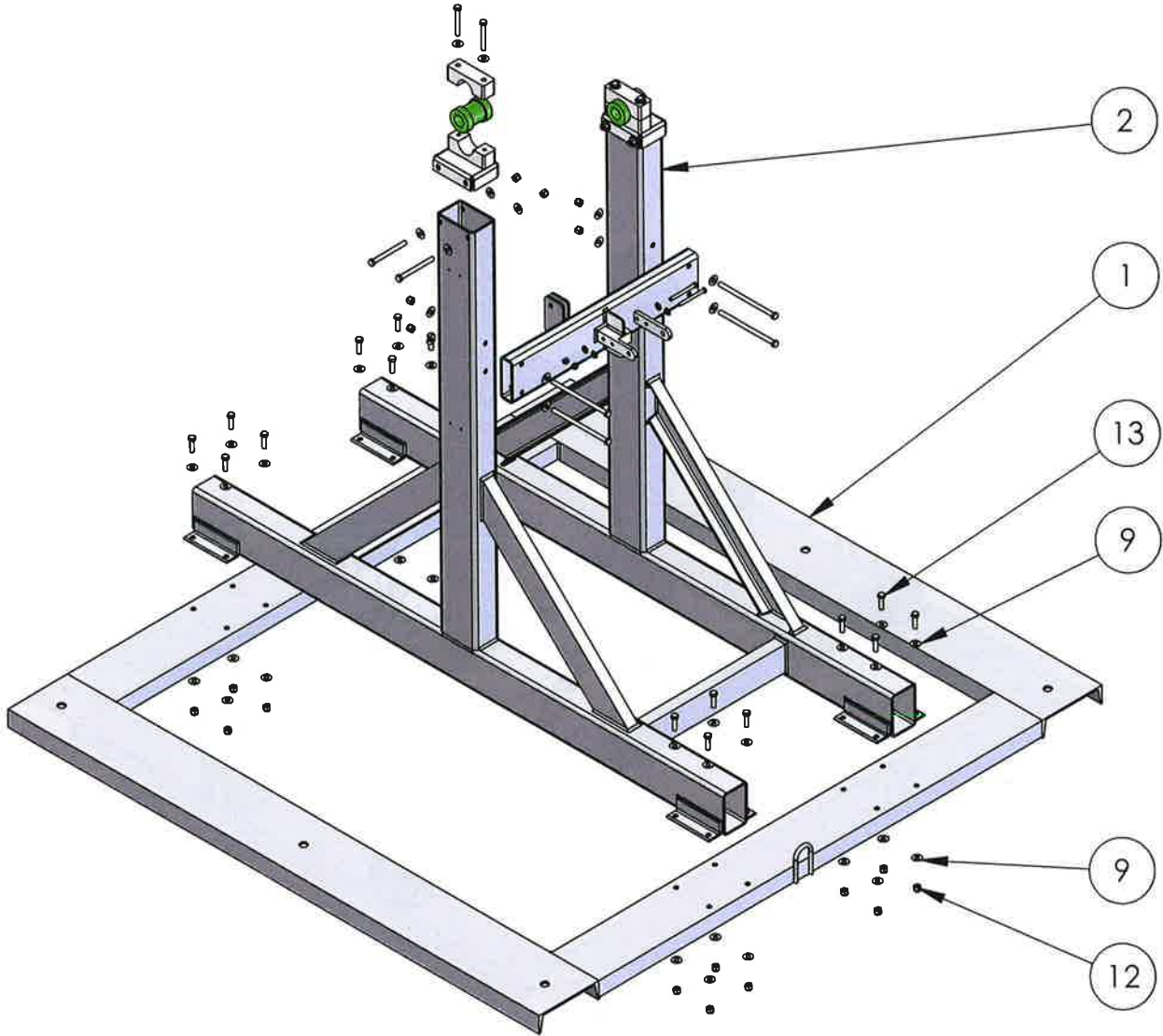




# 420F BOOM FRAME ASM

WEIGHT: 963.82 LB ( KG)

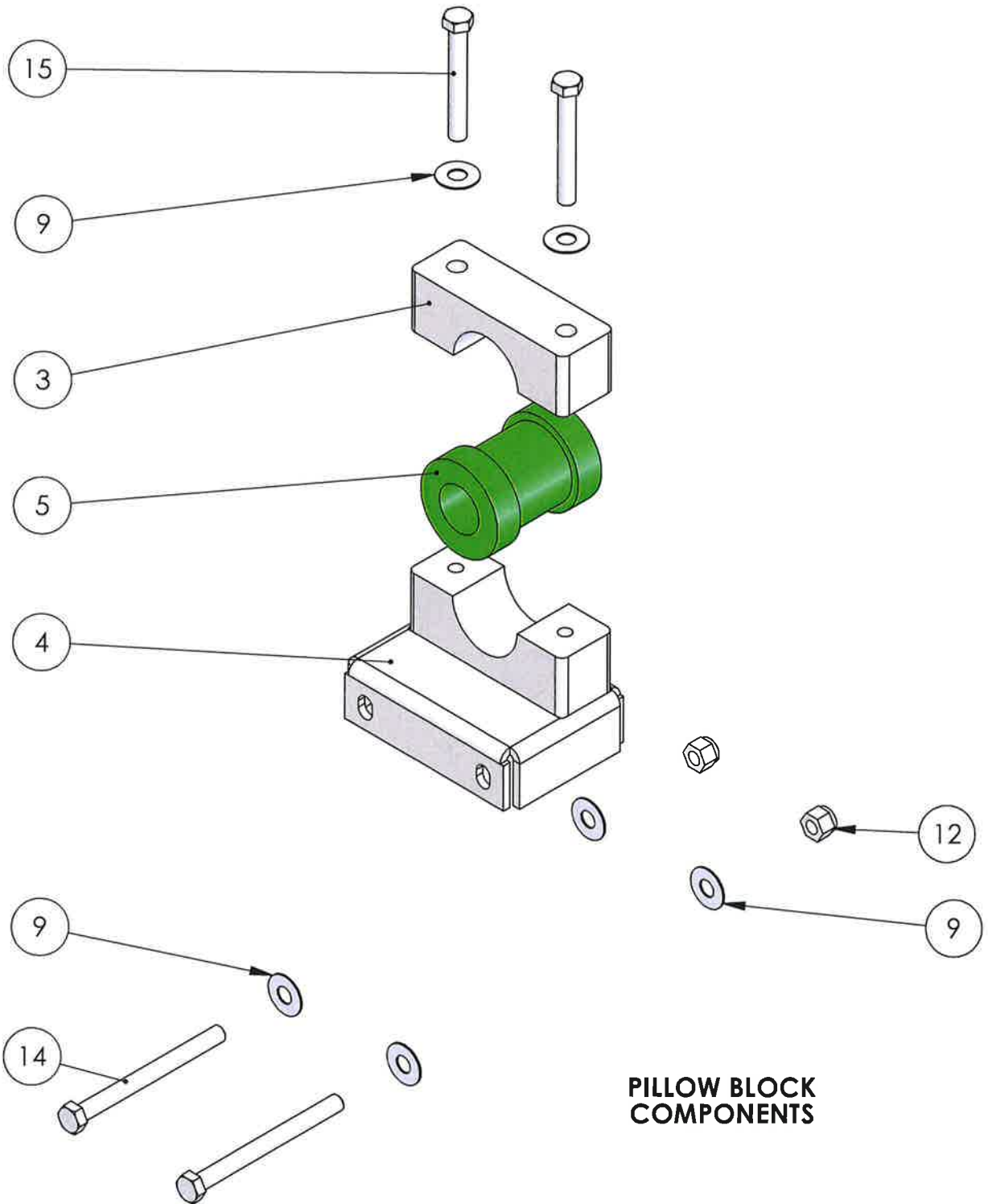




# 420F BOOM FRAME ASM

WEIGHT: 963.82 LB ( KG)





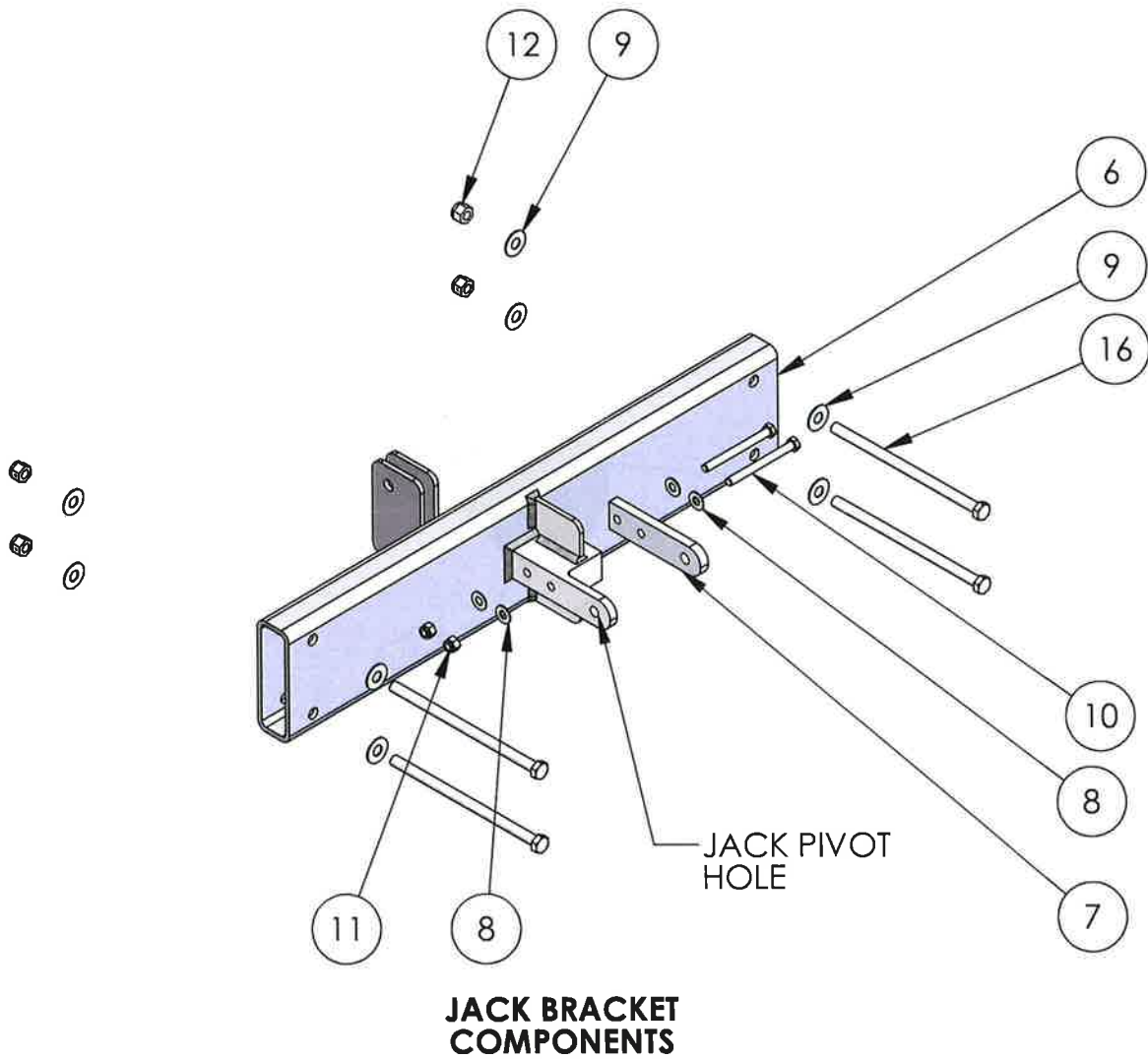
**PILLOW BLOCK COMPONENTS**

# 420F BOOM FRAME ASM

WEIGHT: 963.82 LB ( KG)



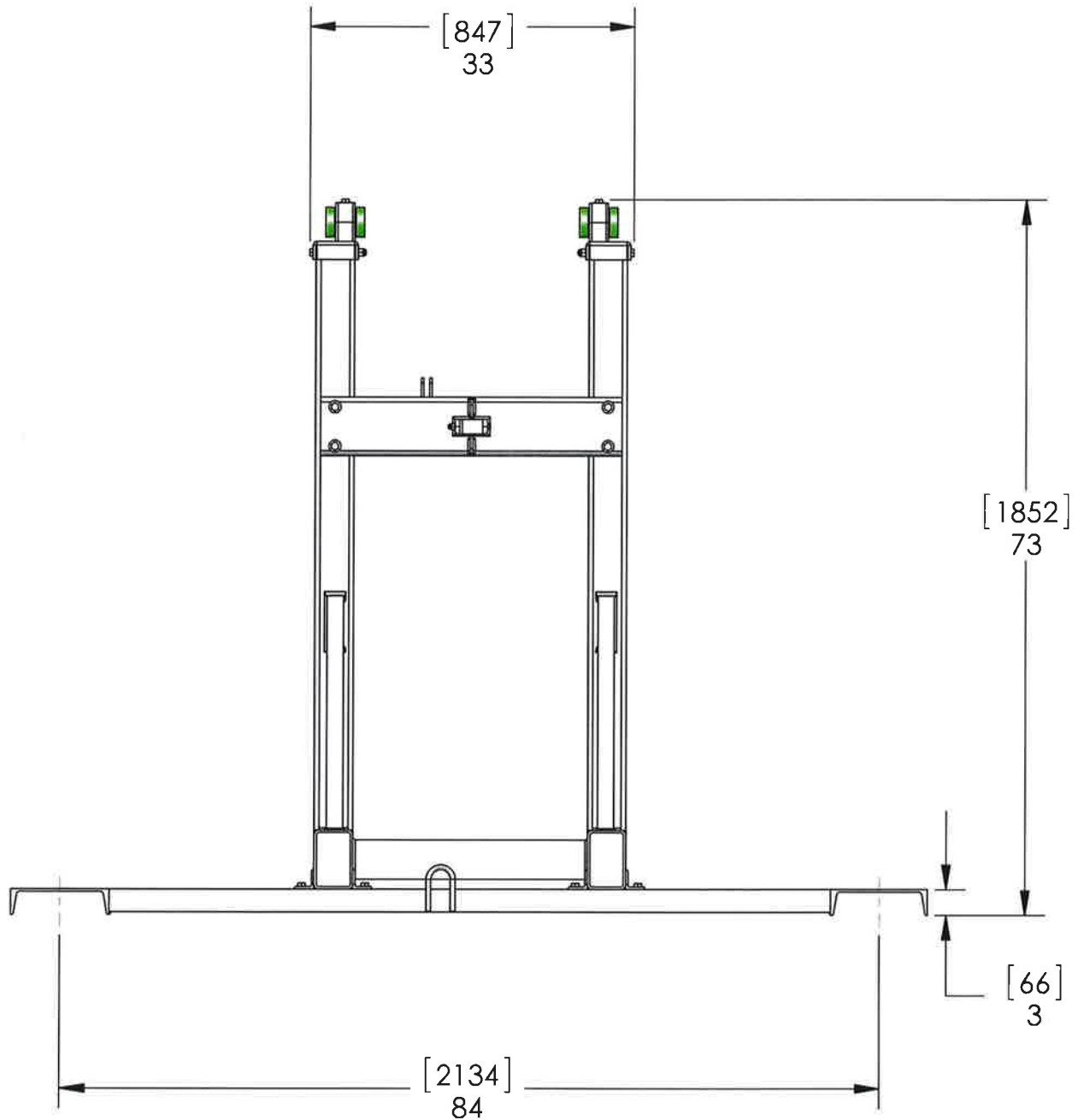




# 420F BOOM FRAME ASM

WEIGHT: 963.82 LB ( KG)

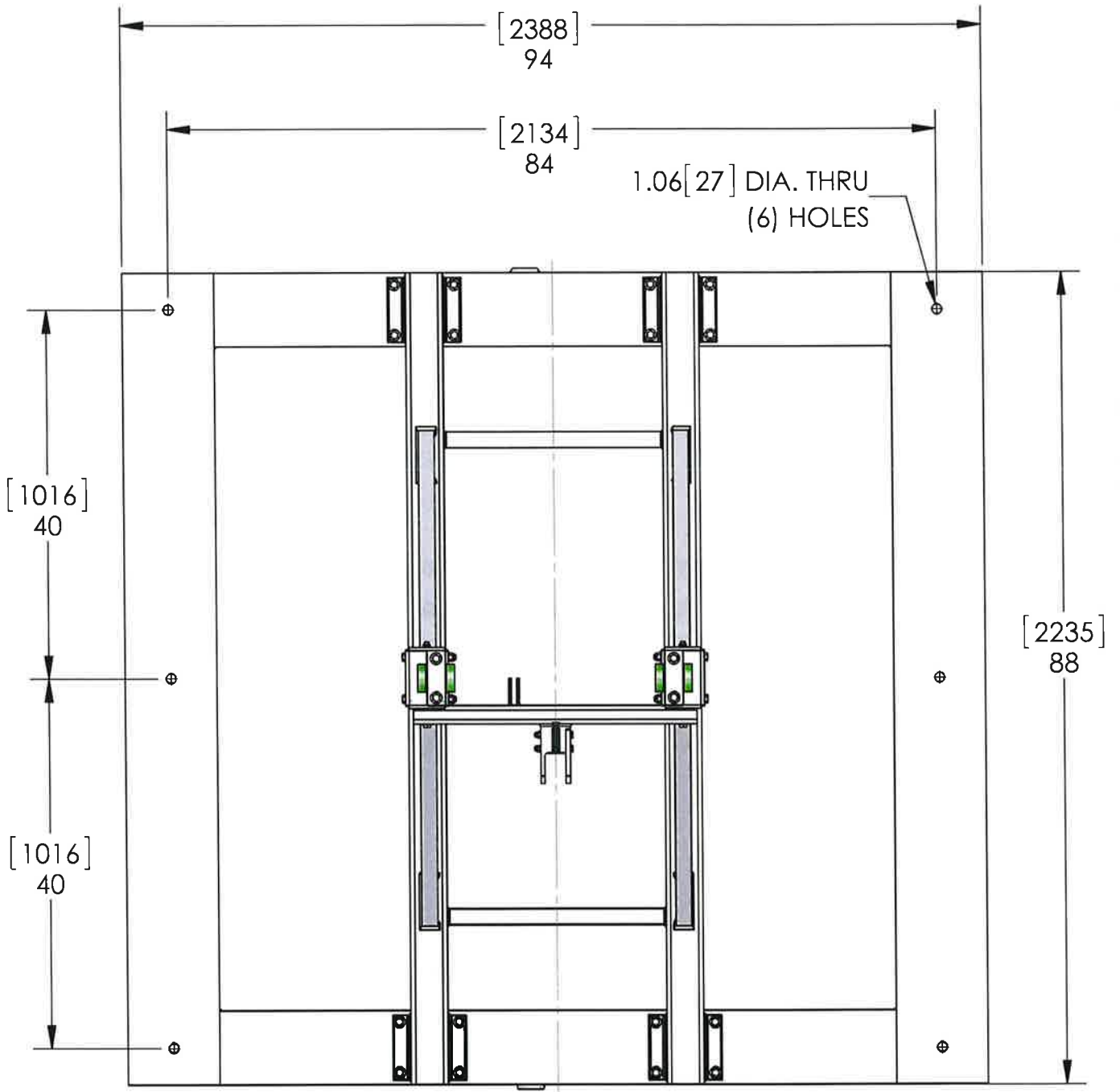




# 420F BOOM FRAME ASM

WEIGHT: 963.82 LB ( KG)





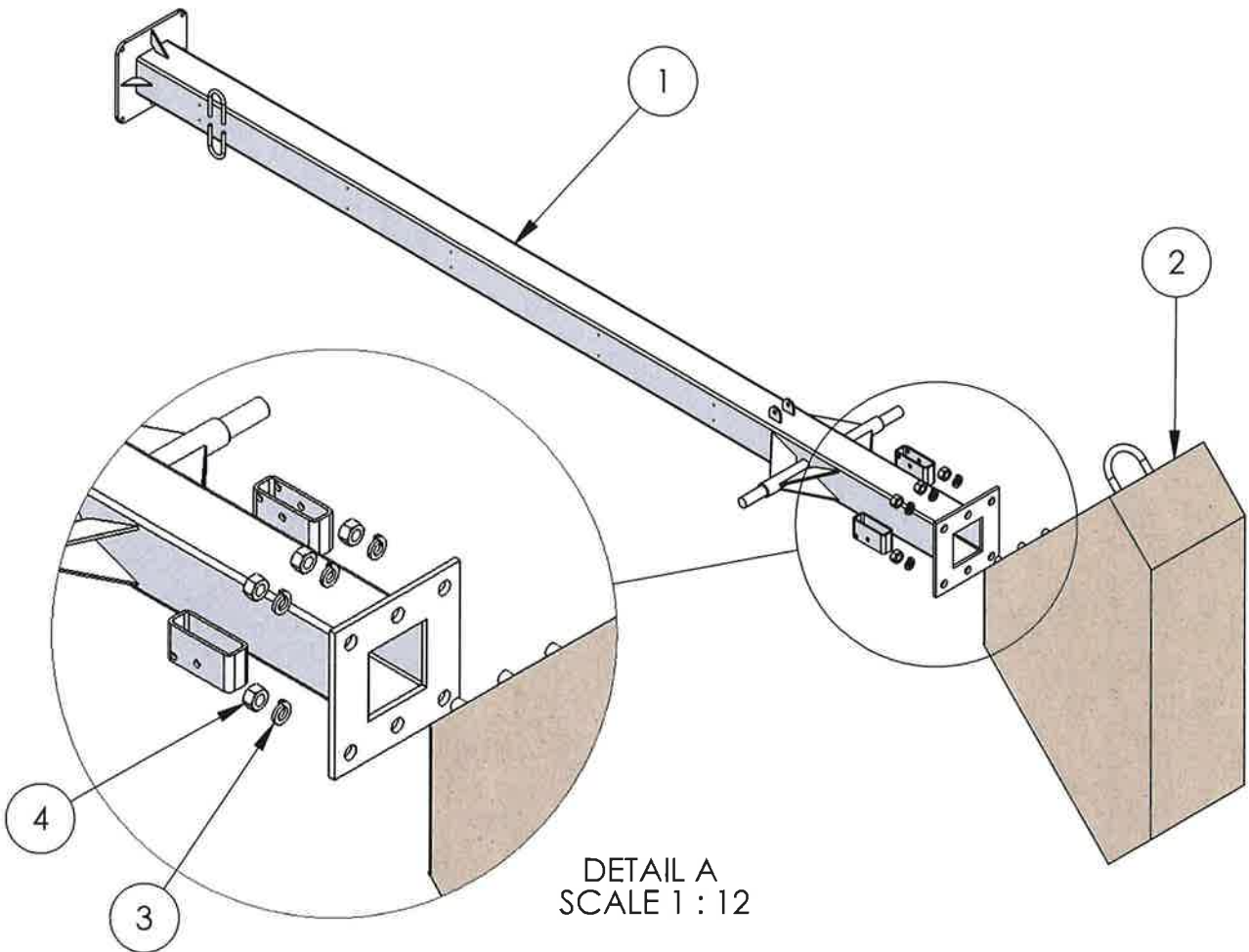
# 420F BOOM FRAME ASM

WEIGHT: 963.82 LB ( KG)



### 420 EVAPORATOR BOOM COMPONENTS

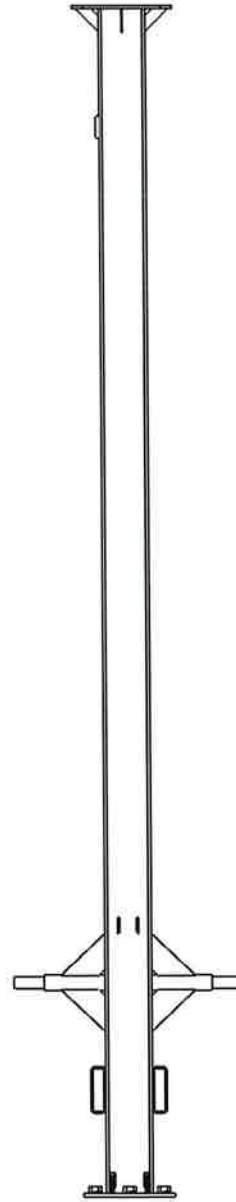
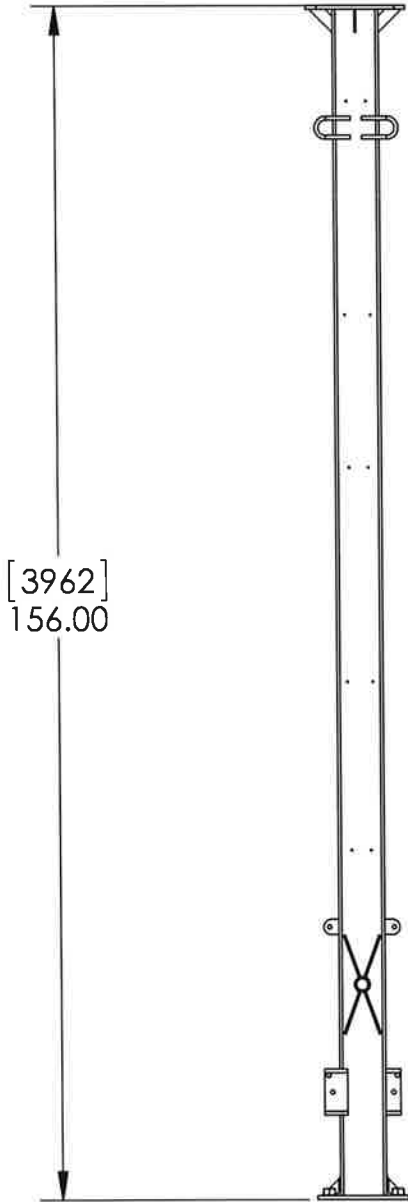
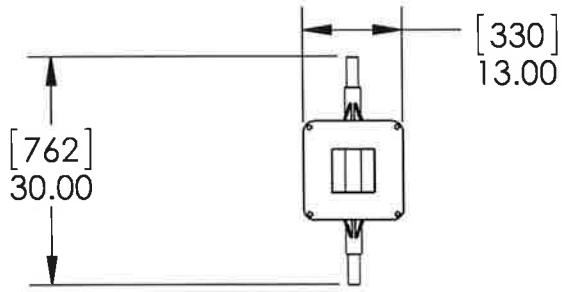
ITEM NO.	QTY.	PART NUMBER	Rev	DESCRIPTION	INITIALS
1	1	420300-2		GALVANIZED 180 DEG EVAP BOOM	
		420300-2SS		420 SS 180 DEG EVAP BOOM	
2	1	340305-6		180 DEG COUNTER WEIGHT	
3	6	1.0 LOCK WASHER		1" SS LOCKWASHER	
4	6	1-8 THD		STAINLESS STEEL HEX NUT	



WEIGHT: 2265.95 LB

## 420 EVAPORATOR BOOM COMPONENTS





WEIGHT: 2265.95 LB

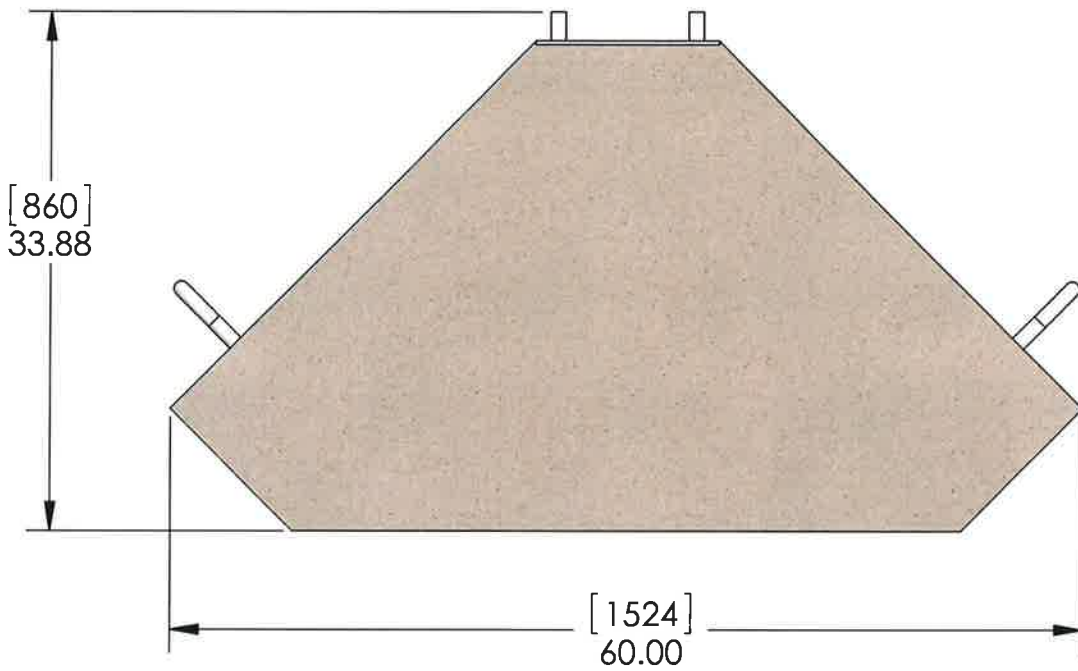
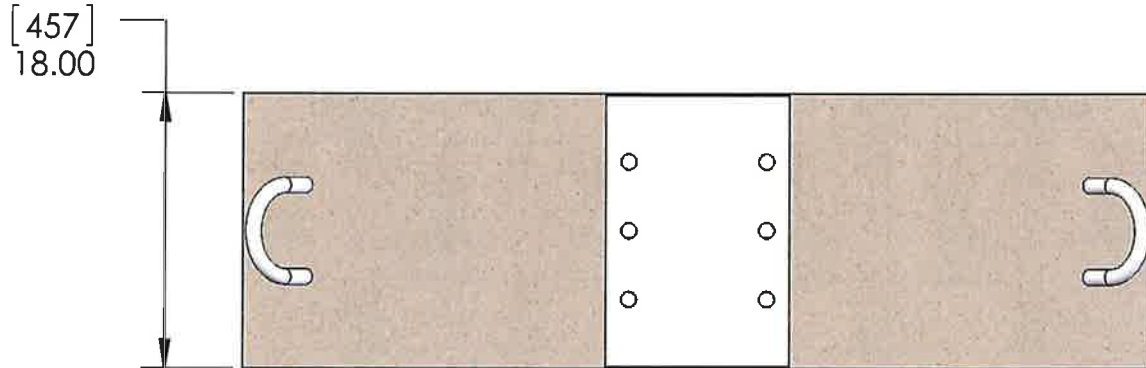
# 420 EVAPORATOR BOOM COMPONENTS



Evaporative Solutions

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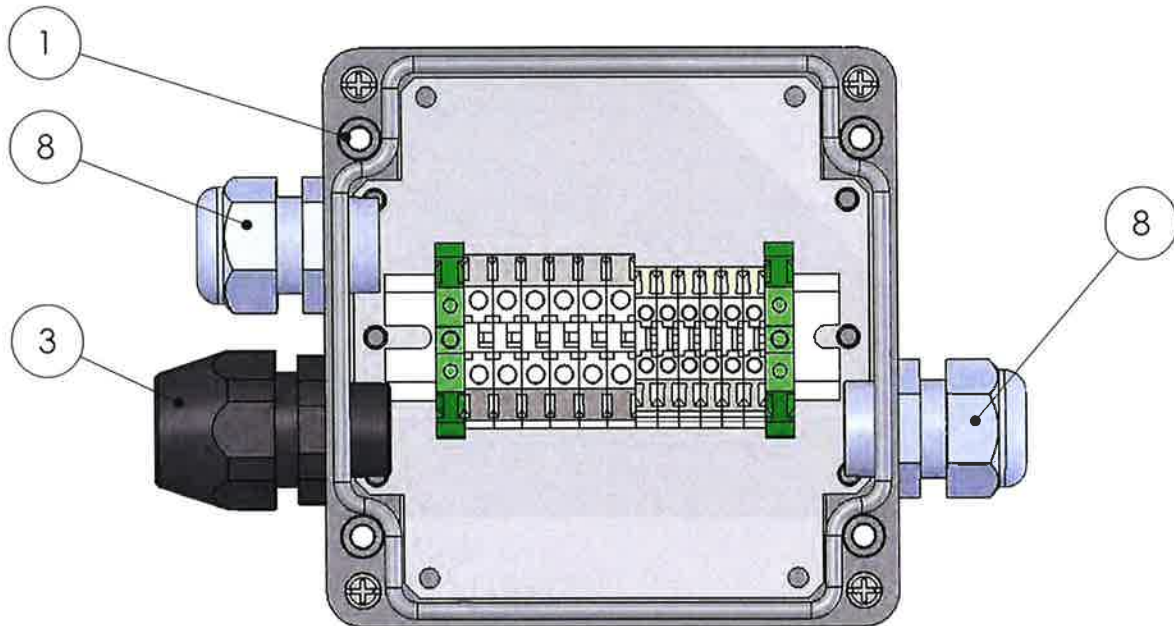


# 420 EVAPORATOR BOOM COMPONENTS

WEIGHT: 2265.95 LB



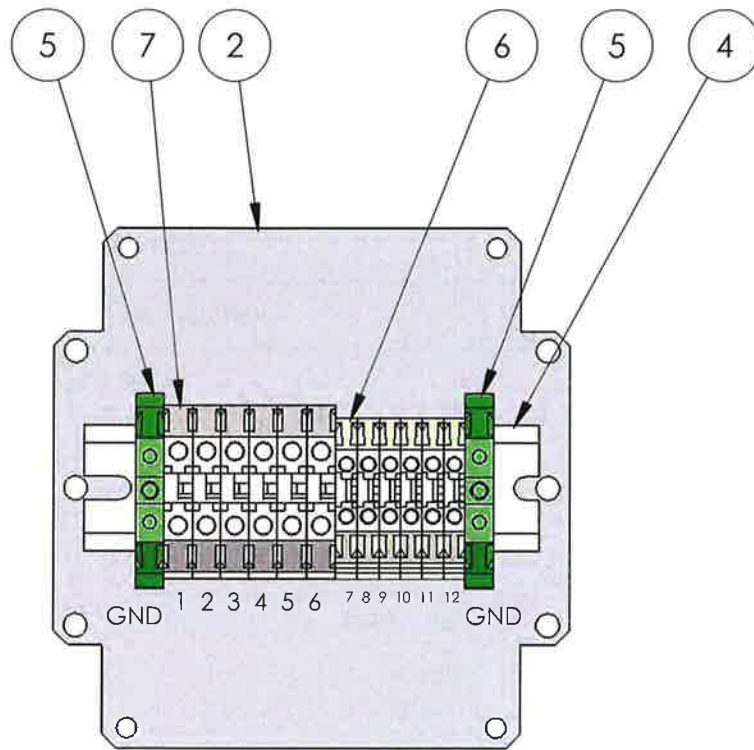
ITEM NO.	QTY.	PART NUMBER	Rev	DESCRIPTION	INITIALS
1	1	27-000107		J-BOX	
2	1	27-000107BP		420 J BOX BACK PLATE	
3	1	22-007011		3/4 PLASTIC CONDUIT FITTING	
4	1	23-199DR1		35mm DIN RAIL	
5	2	23-003000		AB1TP635U 8mm GROUNDING BLOCK	
6	6	23-003005		AB1VV435U 4mm BOX LUG BLOCK	
7	6	23-003014		AB1VV635U 6mm BOX LUG BLOCK	
8	2	SHOP SUPPLIES		3/4" SINGLE HOLE CORD GRIP	



# 420 BOOM J-BOX ASM

WEIGHT: 4.30 LB





420 BOOM J-BOX WIRING				
TERMINAL	WIRE SIZE	COMPONENT	COMPONENT CORD COLOR OR MARKING	MULTI-CONDUCTOR CORD COLOR
GND	#10	MOTOR	GREEN	GREEN
1			T1	RED
2			T2	BLACK
3			T3	WHITE
4			T4	BLUE
5			T5	BROWN
6	#18	VIBRATION SWITCH	T6	ORANGE
7			RED	RED
8			RED/BLACK	RED/BLACK
9			BLUE/BLACK	BLUE/BLACK
10			BROWN	BROWN
11			BLUE	BLUE
12	BLACK	BLACK		
GND			YELLOW	YELLOW/BARE

WEIGHT: 4.30 LB

# 420 BOOM J-BOX ASM

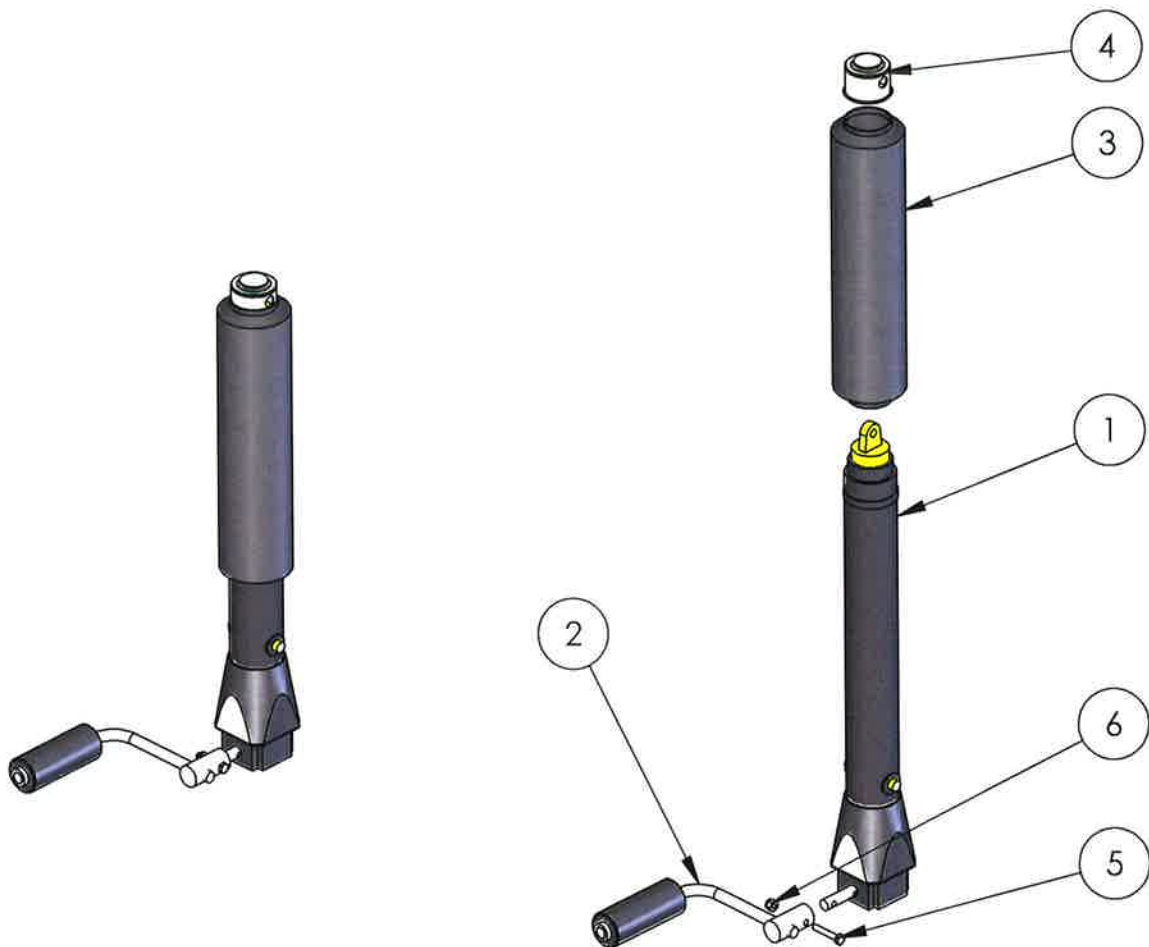


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### 420 EVAPORATOR LINEX JACK COMPONENTS

ITEM NO.	QTY.	PART NUMBER	Rev	DESCRIPTION	INITIALS
1	1	340303-1		LINEX COATED EVAPORATOR JACK	
2	1	340302-5		EVAP JACK HANDLE	
3	1	39-840003-JB		Vertical Adjustment Jack Boot	
4	1	340302-8		JACK BOOT CAP	
5	1	1/4-20 x 1-1/2" LG		STAINLESS STEEL HEX HEAD SCREW	
6	1	1/4-20 THD		HEX LOCK NUT, STAINLESS STEEL NYLON INSERT	



WEIGHT: 6.01 LB

## 420 EVAPORATOR LINEX JACK COMPONENTS



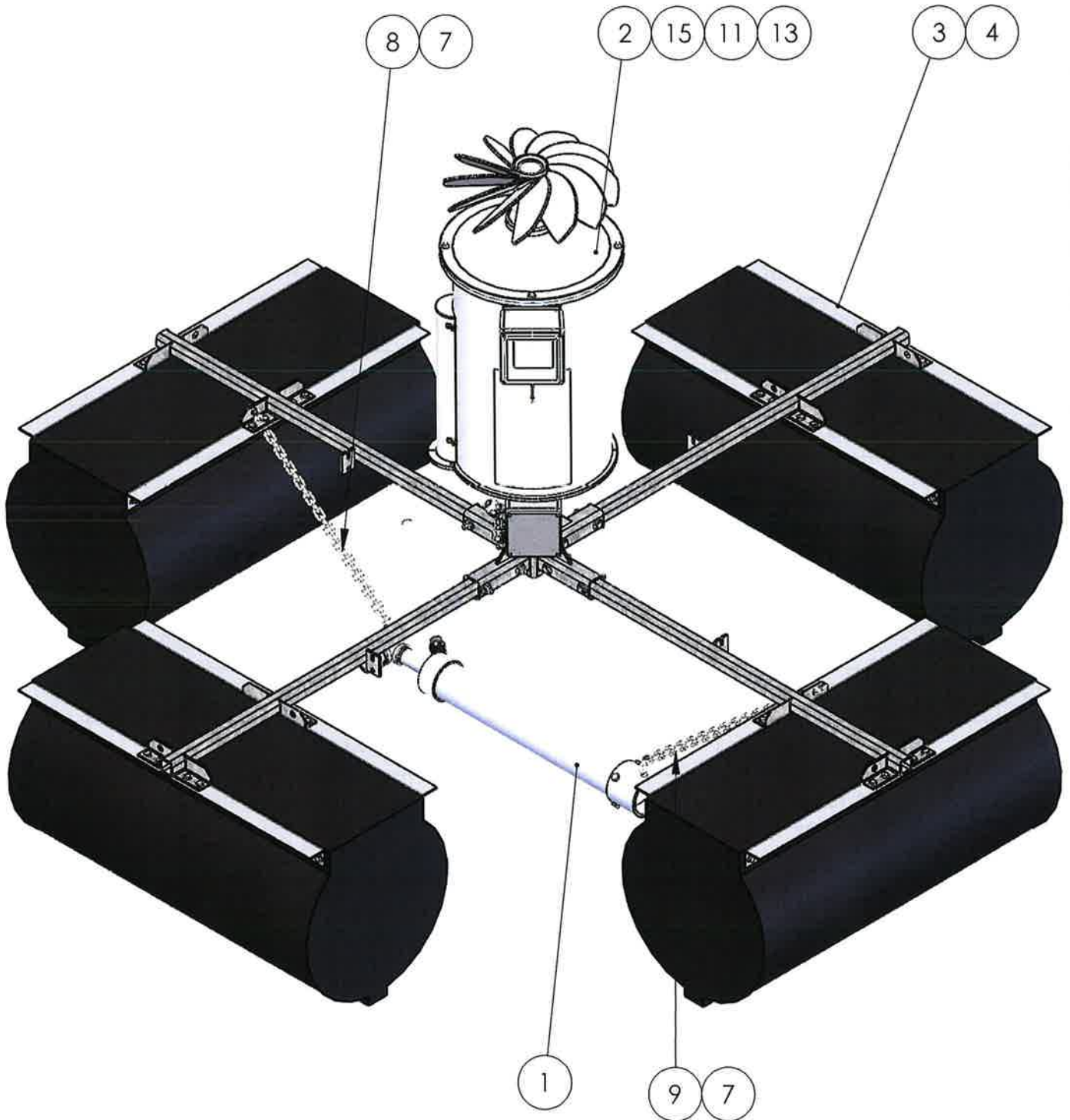
## 420 FLOAT EVAPORATOR ASM

ITEM NO.	QTY.	PART NUMBER	Rev	DESCRIPTION	INITIALS
1	1	420 2.0hp_460V_60Hz 4 Inch Sleeve Pump Asm		2.0HP, 60 HZ, 7 STAGE SUBMERSIBLE PUMP ASM	
2	1	420-EVAP-HEAD		420 EVAPORATOR HEAD ASM	
3	1	420 FLOAT FRAME		420 FLOAT FRAME COMPONENTS	
4	1	420F FRAME-SS		420 FLOAT FRAME - STAINLESS STEEL (NOT SHOWN)	
5	1	27-420-FLOAT		420F FAN AND VIBRATION SWITCH JUNCTION BOX	
6	1	27-420-FLOATP		420 FLOAT PUMP JUNCTION BOX	
7	4	10-000045		3/16 OVAL THREADED CONNECTOR	
8	1	33-003012		3/16" X 29" L.S.S. CHAIN	
9	1	33-003011		3/16" X 32" L.S.S. CHAIN	
10	8	.25 Nom ID		SS FLAT WASHER	
11	8	.50 Nom ID		SS FLAT WASHER	
12	8	1/4-20 THD		HEX LOCK NUT, STAINLESS STEEL NYLON INSERT	
13	4	1/2-13 THD		HEX LOCK NUT, STAINLESS STEEL NYLON INSERT	
14	8	1/4-20 x 1-1/2" LG		SHCS, STAINLESS STEEL	
15	4	1/2-13 x 2" LG		HEX HEAD CAP SCREW, STAINLESS STEEL	
16	1	63-000034		1" 2-WAY SS BALL VALVE DIRECT MOUNT 2-PIECE	
17	1	61-001006		1" SS CLOSE NIPPLE	
18	1	31-002256		1" x 68" 420 FLOAT HOSE ASSY. (NOT SHOWN)	

WEIGHT: LB

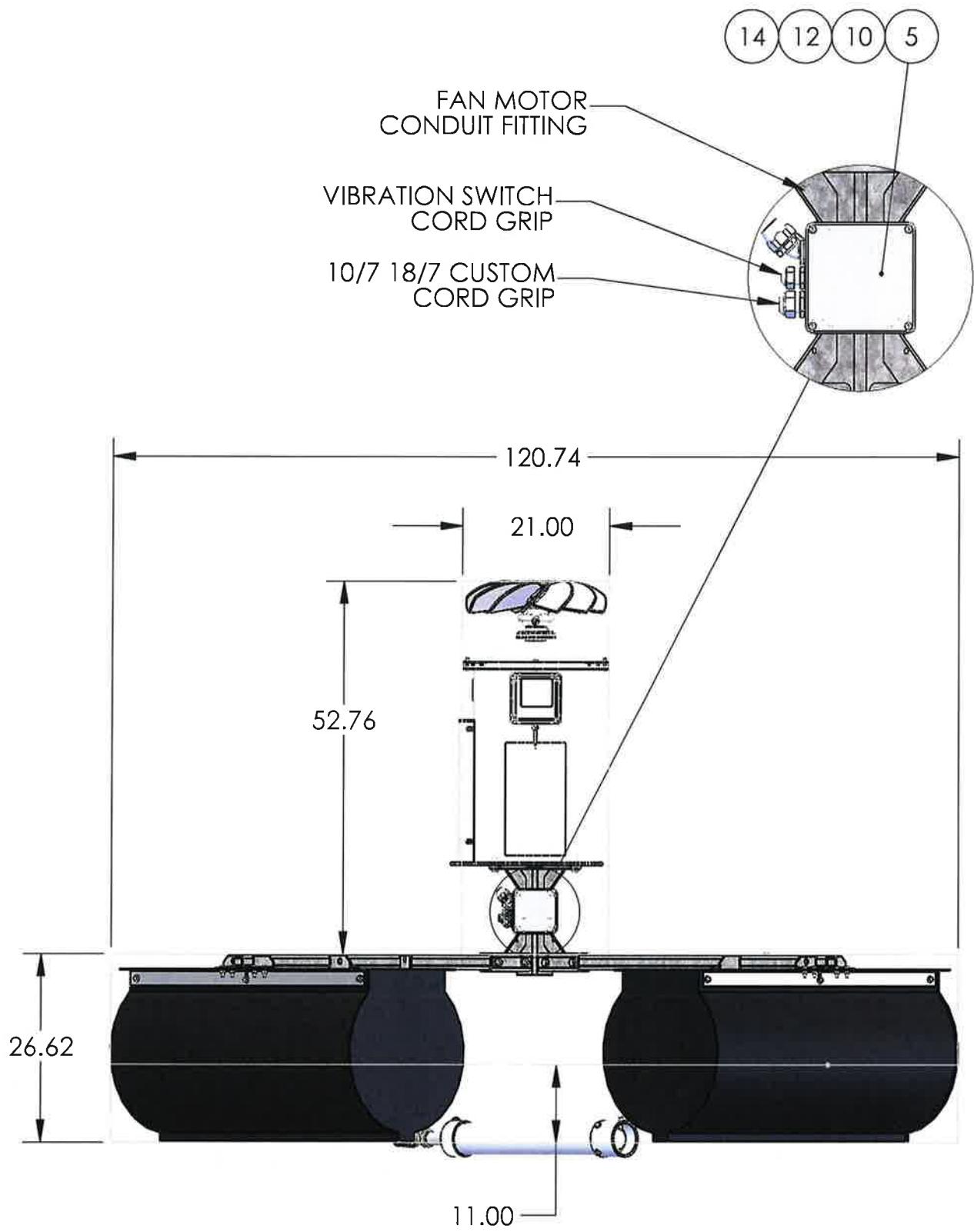






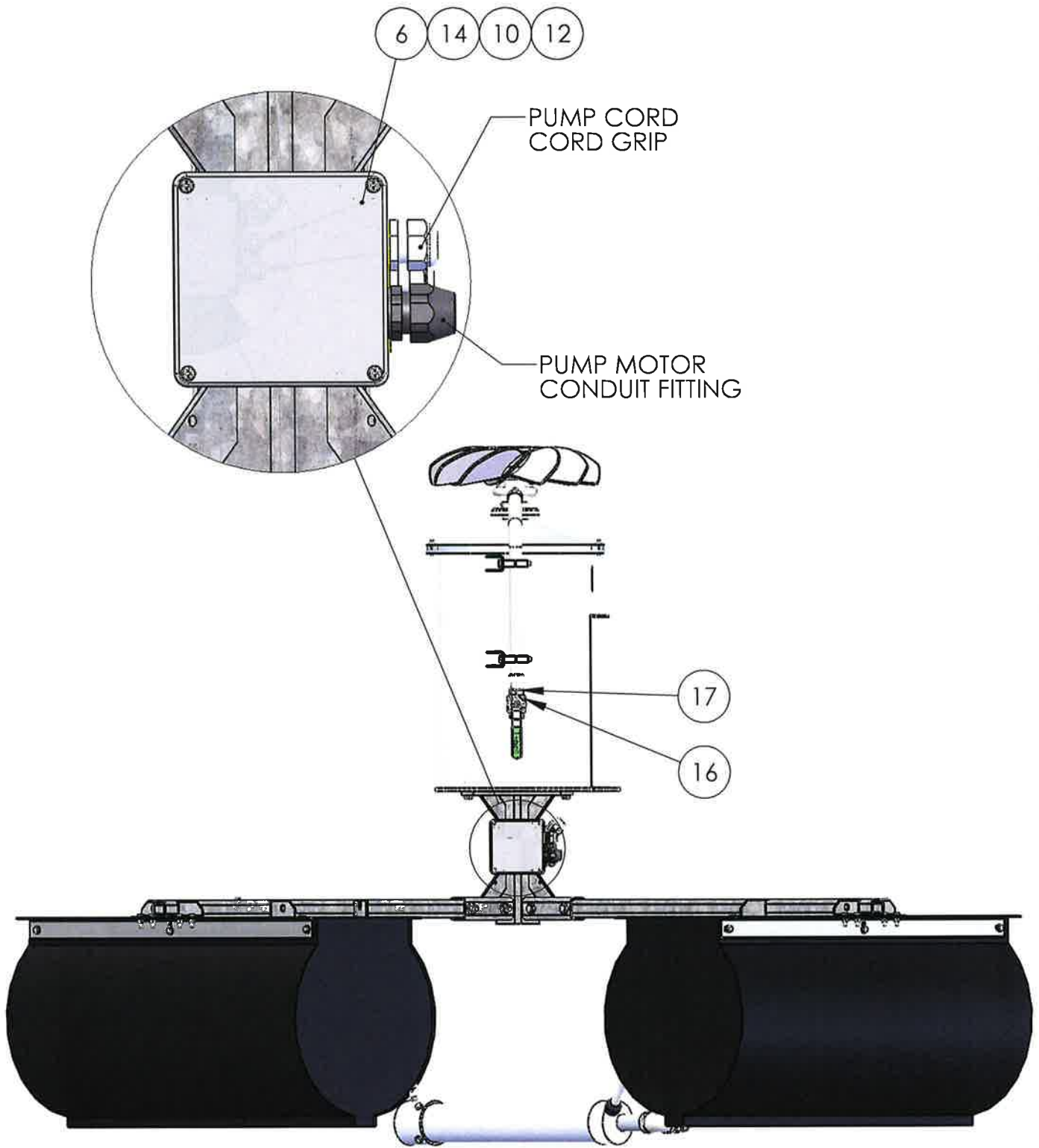
WEIGHT: 1156.03 LB





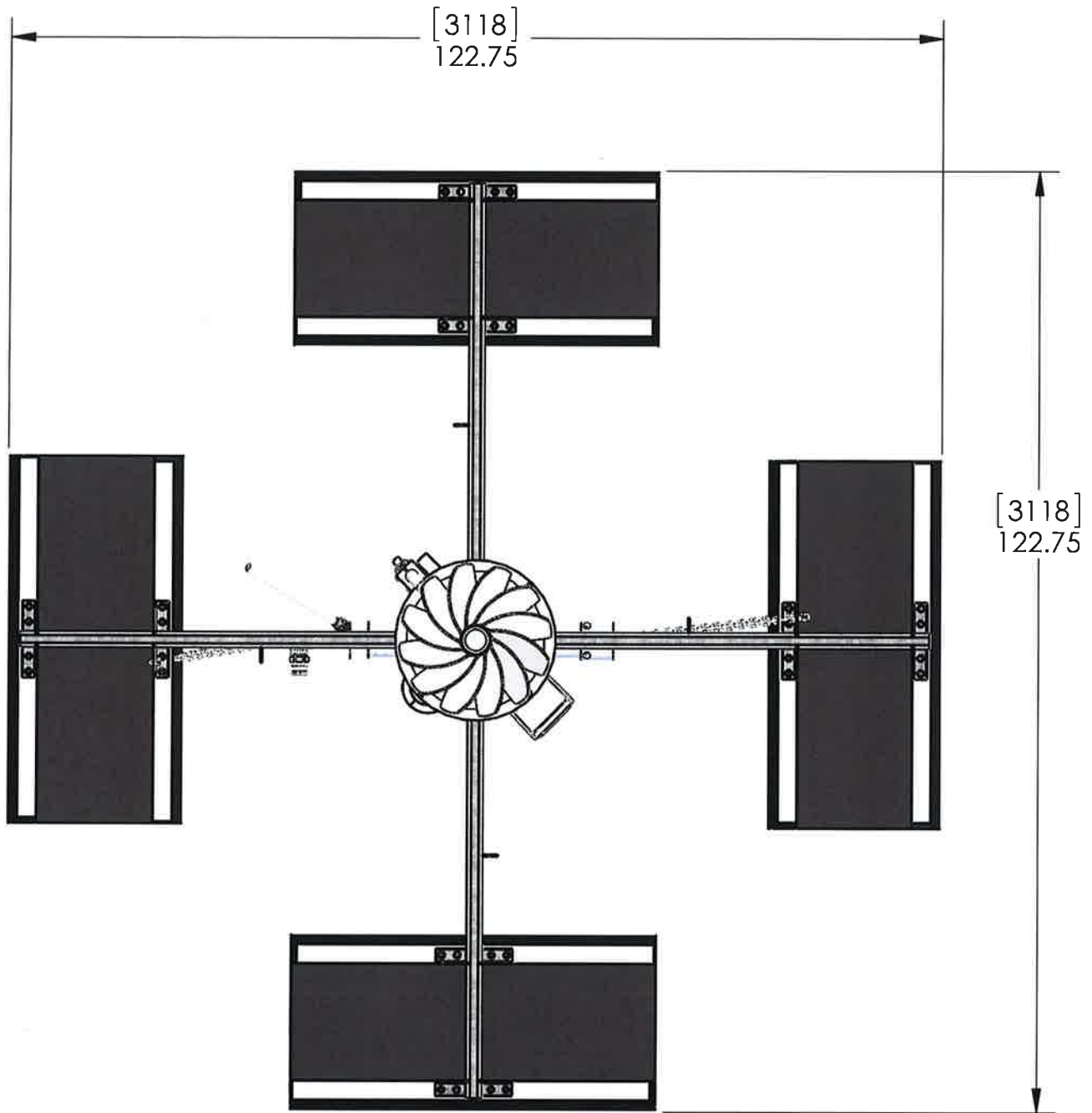
WEIGHT: 1156.03 LB





WEIGHT: 1156.03 LB



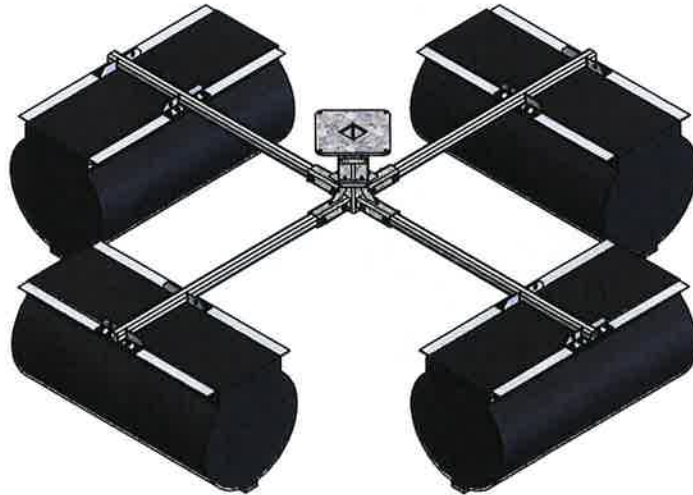


WEIGHT: 1156.03 LB



### 420 FLOAT FRAME COMPONENTS

ITEM NO.	QTY.	PART NUMBER	Rev	DESCRIPTION	INITIALS
1	1	420601-1		420 EVAPORATOR FLOAT ADAPTOR	
2	4	420602-1		FLOAT ARM	
3	8	420603-1		MOUNTING ANGLE	
4	4	420600-1		23 IN. DIA. x 48 IN. PONTOON W/ FOAM NO VENT	
5	16	.50 Nom ID		SS FLAT WASHER	
6	64	.38 Nom ID		SS FLAT WASHER	
7	8	1/2-13 x 3-1/2" LG		STAINLESS STEEL HEX HEAD SCREW	
8	8	1/2-13 THD		HEX LOCK NUT, STAINLESS STEEL NYLON INSERT	
9	32	3/8-16 THD		HEX LOCK NUT, STAINLESS STEEL NYLON INSERT	
10	32	3/8-16 x 1-1/4" LG		STAINLESS STEEL HEX HEAD SCREW	
11	24	3/8-16 x 3/4" LG		STAINLESS STEEL HEX HEAD VIBRATION PROOF SCREW	

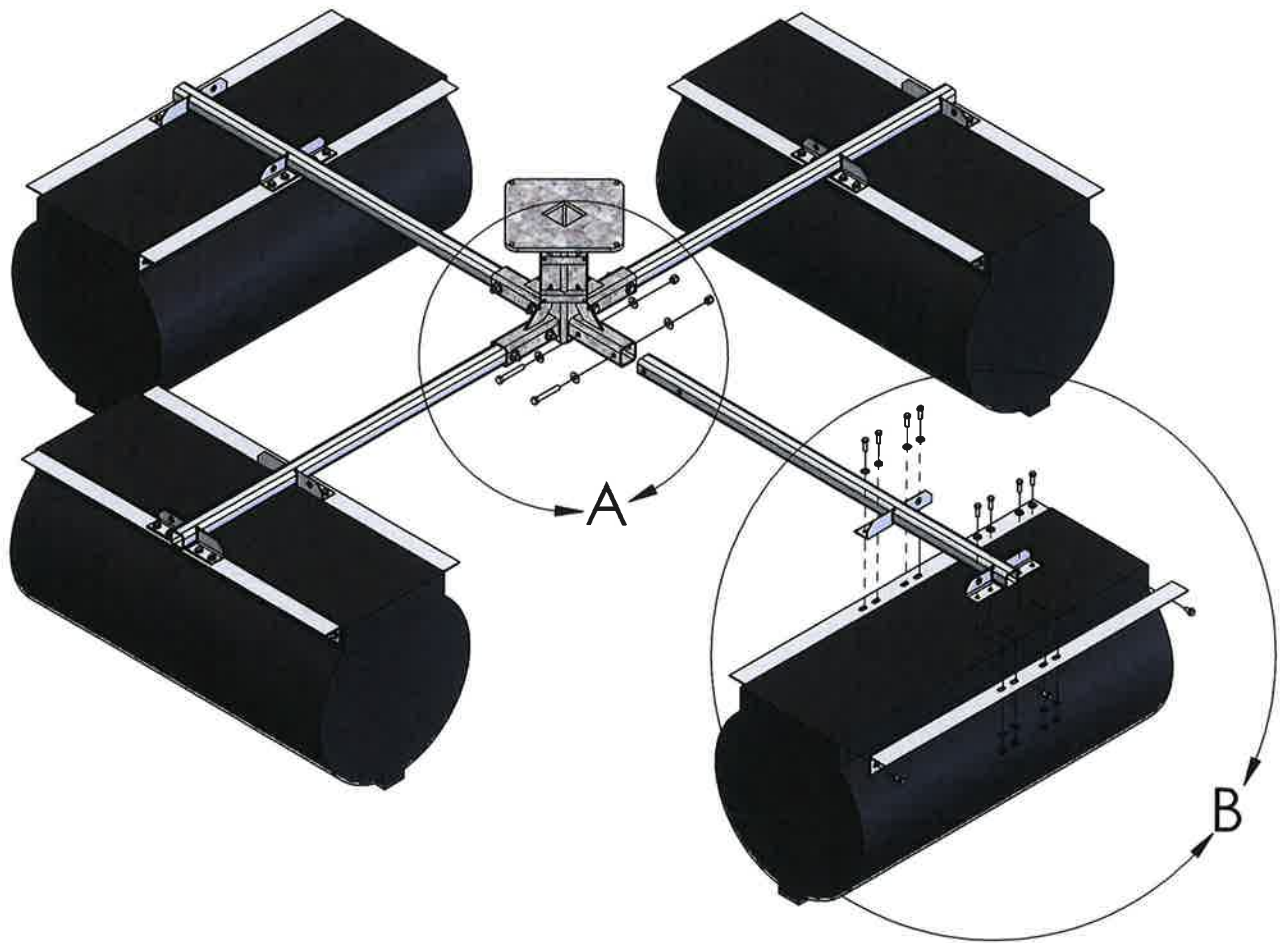


## 420 FLOAT FRAME COMPONENTS

WEIGHT: 464.37 LB



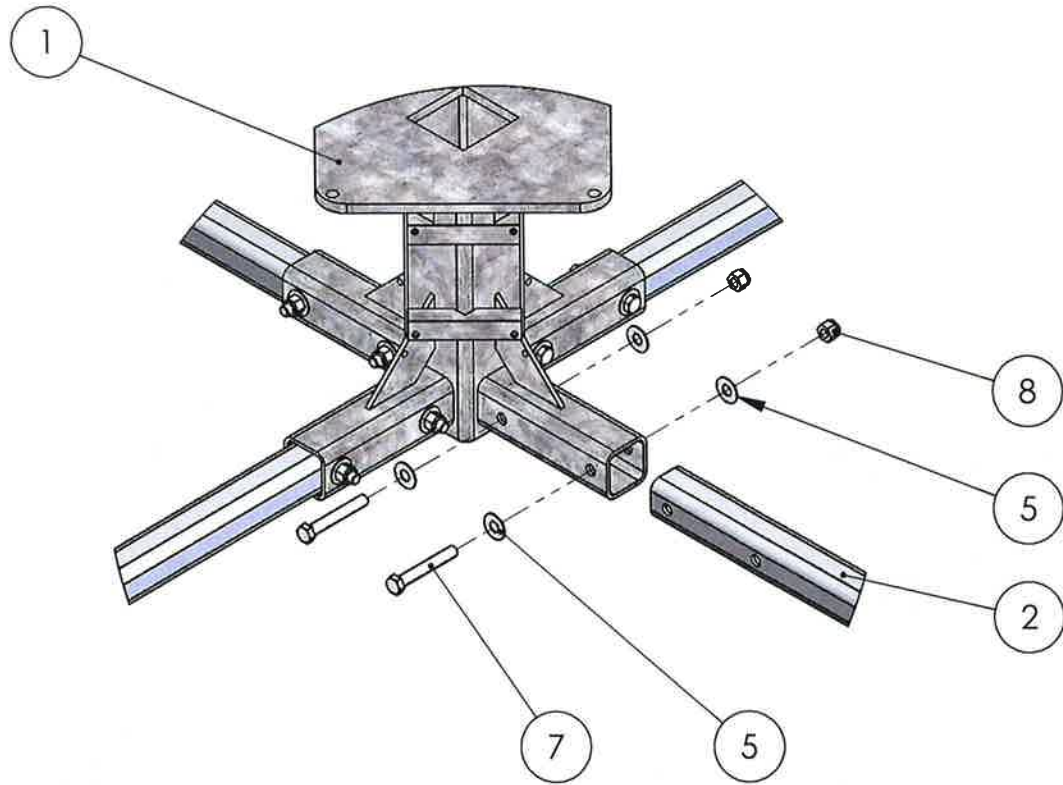




# 420 FLOAT FRAME COMPONENTS

WEIGHT: 464.37 LB



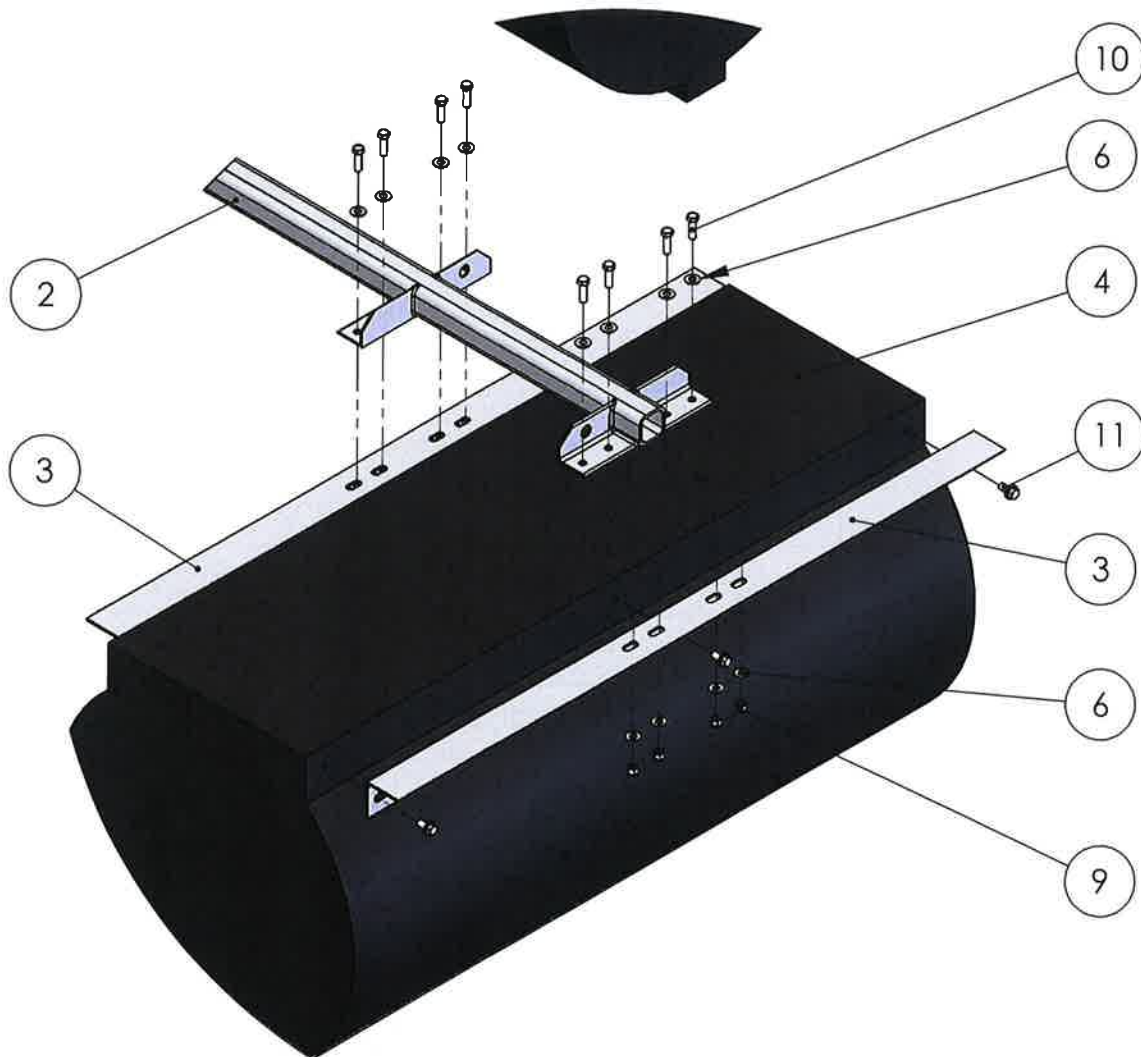


DETAIL A

# 420 FLOAT FRAME COMPONENTS

WEIGHT: 464.37 LB





DETAIL B

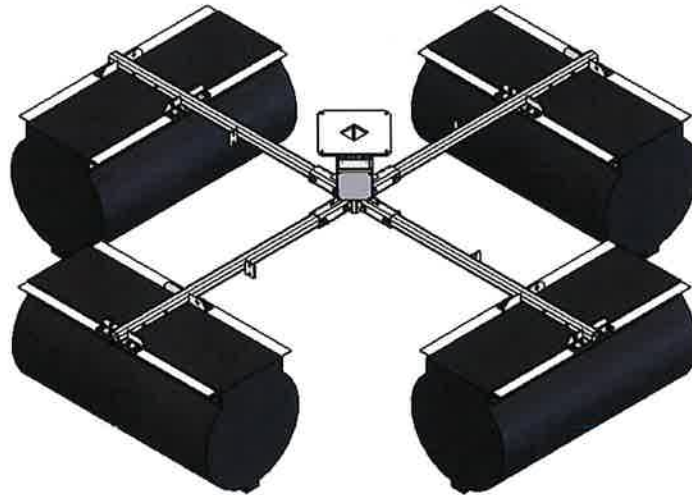
# 420 FLOAT FRAME COMPONENTS

WEIGHT: 464.37 LB



### 420 FLOAT FRAME STAINLESS STEEL COMPONENTS

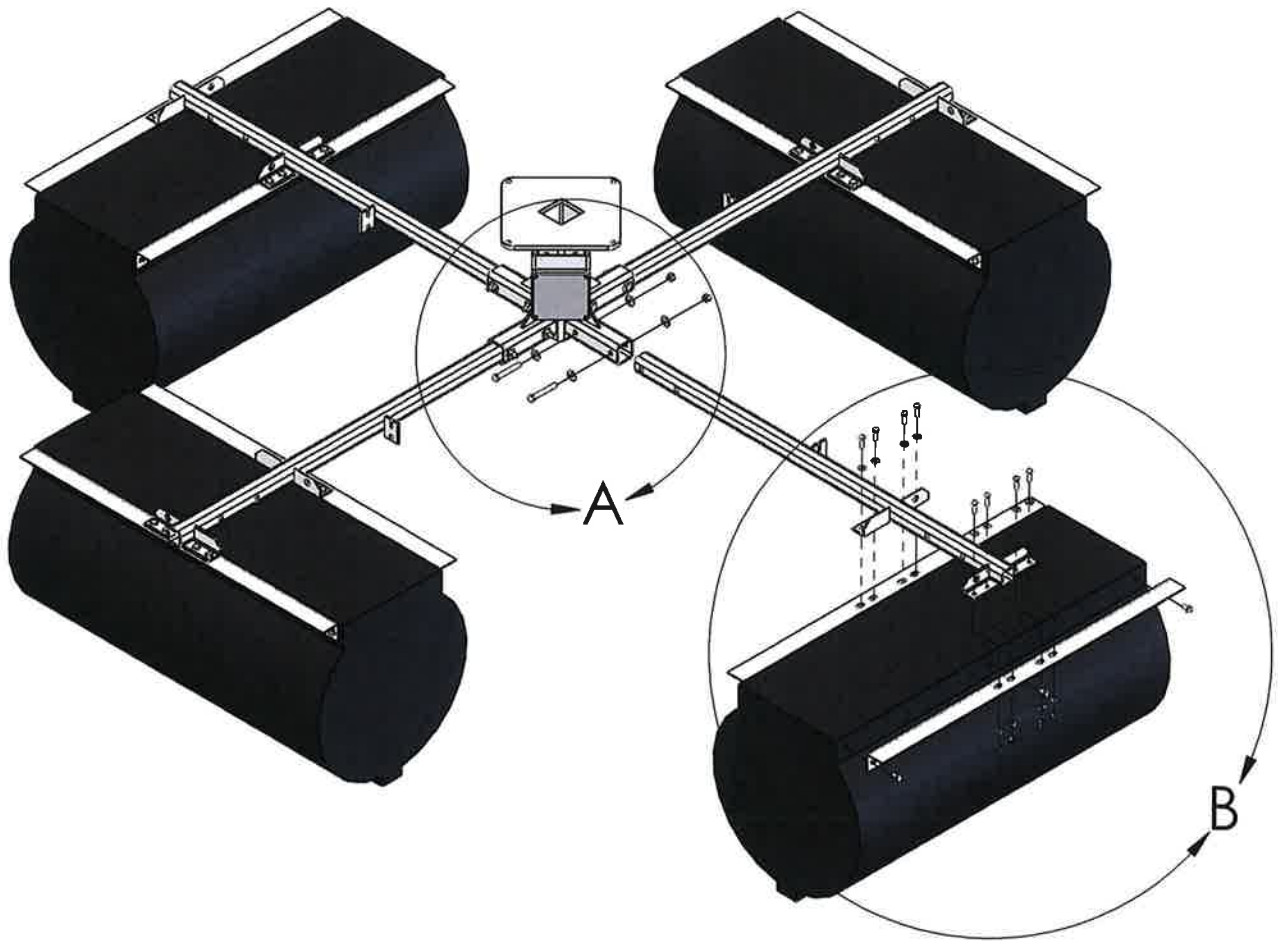
ITEM NO.	QTY.	PART NUMBER	Rev	DESCRIPTION	INITIALS
1	4	420600-1		23 IN. DIA. x 48 IN. PONTOON W/ FOAM NO VENT	
2	16	.50 Nom ID		SS FLAT WASHER	
3	64	.38 Nom ID		SS FLAT WASHER	
4	8	1/2-13 x 3-1/2" LG		HEX HEAD CAP SCREW, STAINLESS STEEL	
5	8	1/2-13 THD		HEX LOCK NUT, STAINLESS STEEL NYLON INSERT	
6	32	3/8-16 THD		HEX LOCK NUT, STAINLESS STEEL NYLON INSERT	
7	32	3/8-16 x 1-1/4" LG		STAINLESS STEEL HEX HEAD SCREW	
8	24	3/8-16 x 3/4" LG		STAINLESS STEEL HEX HEAD VIBRATION PROOF SCREW	
9	1	420601-1SS		420 EVAPORATOR FLOAT ADAPTOR - STAINLESS STEEL	
10	4	420602-1SS		FLOAT ARM - STAINLESS STEEL	
11	8	420603-1SS		MOUNTING ANGLE - STAINLESS STEEL	
12	2	27-000107		J-BOX	



WEIGHT: 476.28 LB

## 420 FLOAT FRAME COMPONENTS



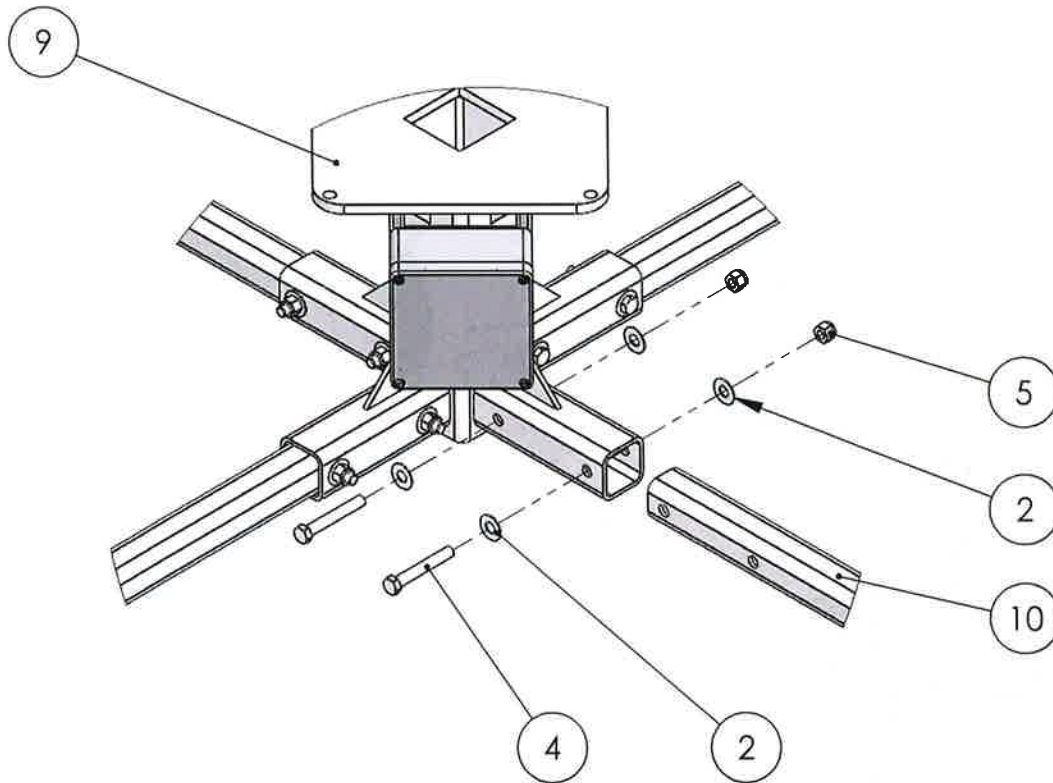


# 420 FLOAT FRAME COMPONENTS

WEIGHT: 476.28 LB





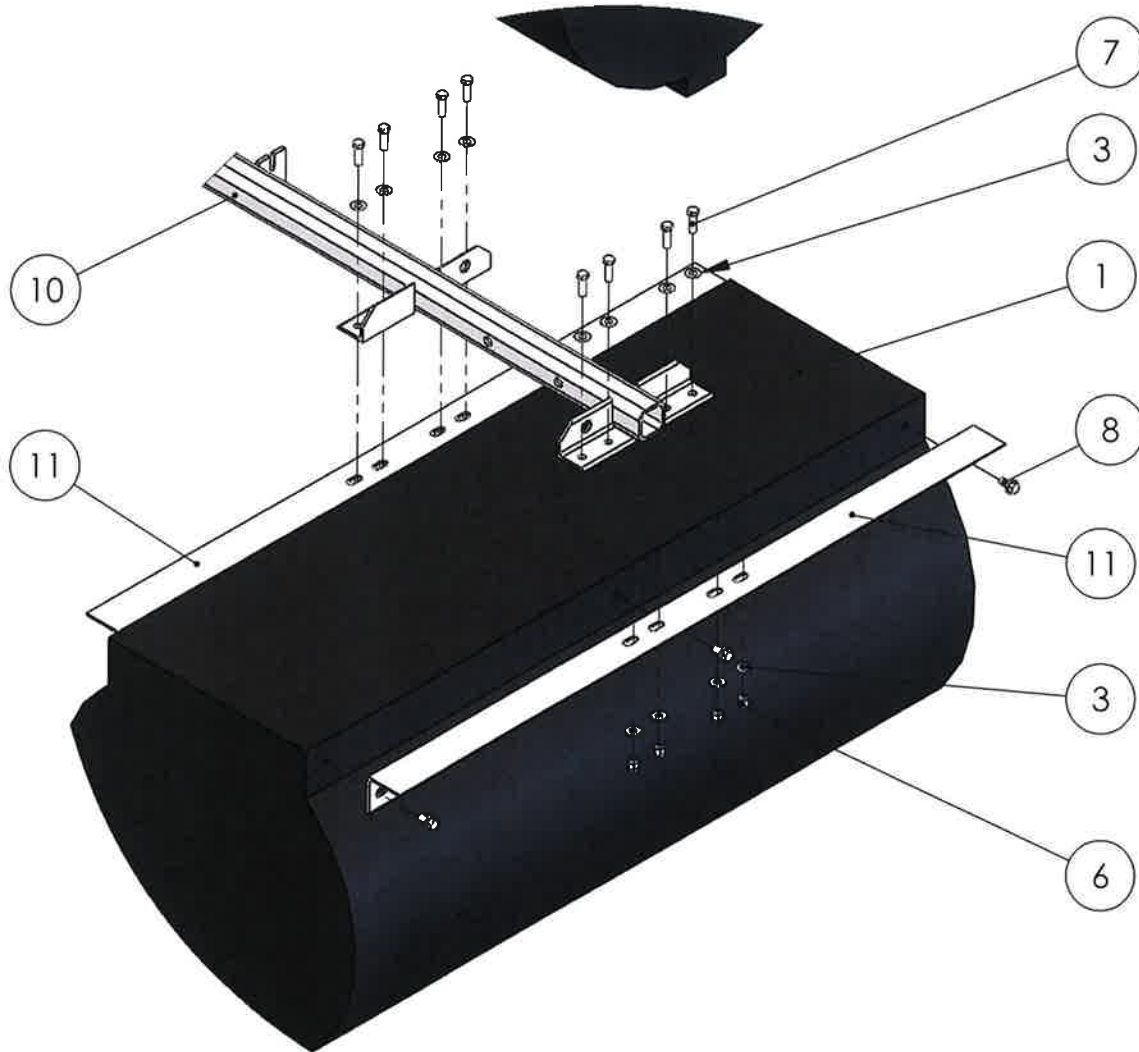


DETAIL A

# 420 FLOAT FRAME COMPONENTS

WEIGHT: 476.28 LB





DETAIL B

# 420 FLOAT FRAME COMPONENTS

WEIGHT: 476.28 LB

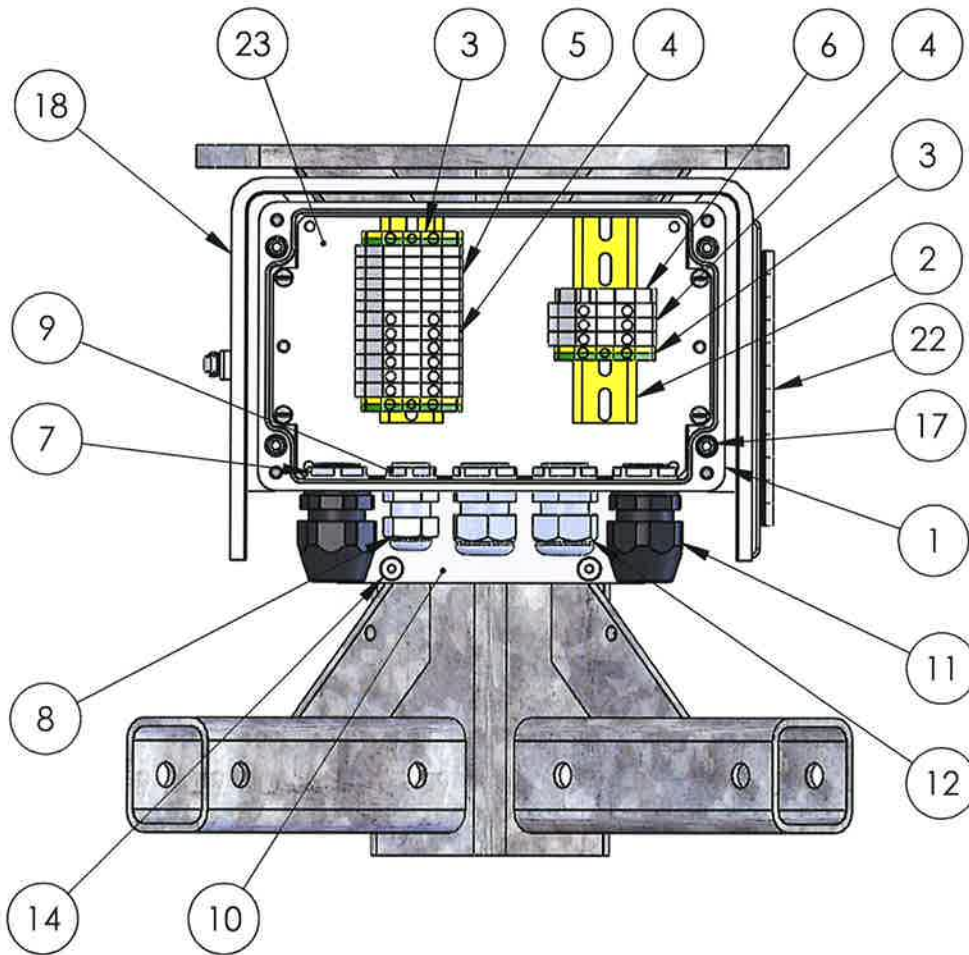


## 420 FLOAT J-BOX 2014

ITEM NO.	QTY.	PART NUMBER	Rev	DESCRIPTION	INITIALS
1	1	27-000113		J-BOX	
2	2	23-000025		4.50 INCH	
3	3	23-004000		1492 JG6 AB 6mm GROUNDING BLOCK	
4	9	23-004014		1492-J6 AB 6mm BOX LUG BLOCK	
5	6	23-004005		1492-J4 AB 4mm BOX LUG BLOCK	
6	1	23-004004		1492 EAJ35 END BLOCKS	
7	4	SHOP SUPPLIES		3/4" CORD GRIP RETAINING NUT	
8	1	SHOP SUPPLIES		1/2" SINGLE HOLE CORD GRIP	
9	1	SHOP SUPPLIES		1/2" CORD GRIP RETAINING NUT	
10	1	420100-4		420F J-BOX MOUNTING PLATE	
11	2	22-007011		3/4 PLASTIC CONDUIT FITTING	
12	2	SHOP SUPPLIES		3/4" SINGLE HOLE CORD GRIP	
13	4	10-24 x 1/2" LG		STAINLESS STEEL HEX HEAD SCREW	
14	4	1/4-20 x 1 1/4 LG.		FHCS - Stainless	
15	8	.25 Nom ID		SS FLAT WASHER	
16	8	1/4-20 THD		HEX LOCK NUT, STAINLESS STEEL NYLON INSERT	
17	4	1/4-20 x 2" LG		SHCS, STAINLESS STEEL	
18	1	420100-5		420F J-BOX GUARD	
19	1	420100-6		420 J-BOX GUARD COVER	
20	1	10-000014		LATCH HOOK - 420 J-BOX	
21	1	10-000015		LATCH - 420 J-BOX	
22	1	39-840021		1-1/2 WIDE HINDGE	
23	1	27-000113BP		420F J-BOX BACK PLATE	

WEIGHT: LB/ KG

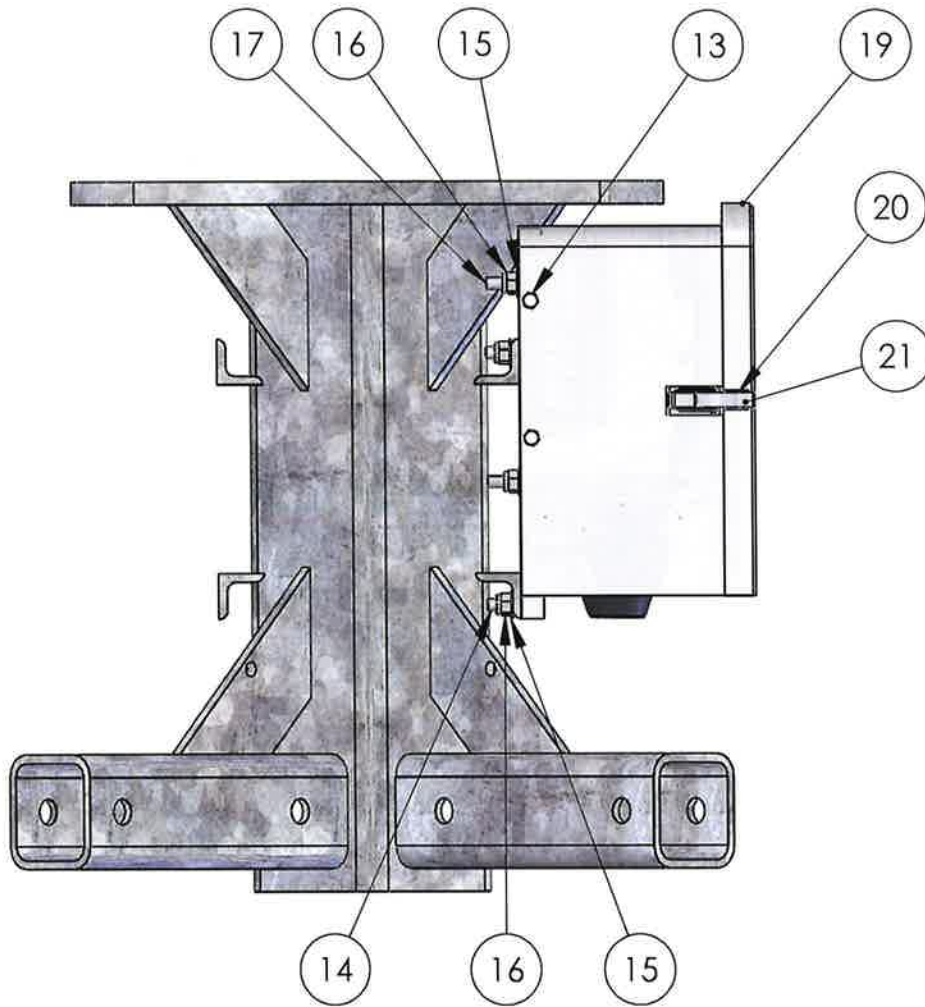

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### 420 FLOAT J-BOX 2014

WEIGHT: 92.13 LB/ KG





**420 FLOAT J-BOX 2014**

WEIGHT: 92.13 LB/ KG





## 420 EVAPORATOR HEAD ASM

ITEM NO.	QTY.	PART NUMBER	Rev	DESCRIPTION	INITIALS
1	1	420200-1		420 EVAPORATOR ENCLOSURE	
2	2	420200-4		420 SPRAY MANIFOLD CLAMP UN-THREADED	
3	2	420200-6		420 SPRAY MAN. CLAMP/THREADED	
4	1	420200-5		420 EVAPORATOR SHROUD	
5	1	420201-1		420 EVAPORATOR SLINGER	
6	1	28-000420		25HP 460-415/60/50 286TD 420 STYLE EVAPORATOR MOTOR	
		28-000420H		25HP 460-415/60/50 286TD 120V INTERNAL HEATER 420 STYLE EVAPORATOR MOTOR	
		28-000421		25HP 575V/60 286TD 420 STYLE EVAPORATOR MOTOR	
7	1	20-440S21400220		24VDC Vib. Sensor 0.2-3.0 in/sec	
8	1	340206-2		FAN RETAINING RING	
9	1	320540-1		FAN COVER PLATE	
10	1	320565-2		FAN COVER SPRING CLIP	
11	7	SHOP SUPPLIES		1/2" LOCK WASHER	
12	1	1/2-13 x 1-1/2" LG		STAINLESS STEEL HEX HEAD SCREW	
13	2	1/2-13 x 1" LG		STAINLESS STEEL HEX HEAD SCREW	
14	4	1/2-13 x 1-1/4" LG		STAINLESS STEEL HEX HEAD SCREW	
15	8	.38 Nom ID		SS FLAT WASHER	
16	2	.50 Nom ID		SS FLAT WASHER	
17	4	.19 Nom ID		SS FLAT WASHER	
18	4	3/8-16 THD		HEX LOCK NUT, STAINLESS STEEL NYLON INSERT	

WEIGHT: LB



420 EVAPORATOR HEAD ASM

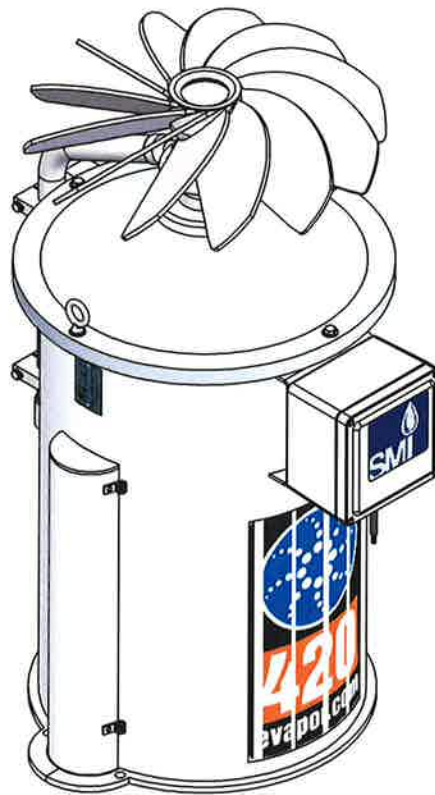
ITEM NO.	QTY.	PART NUMBER	Rev	DESCRIPTION	INITIALS
19	4	5/16-18 x 2" LG		STAINLESS STEEL HEX HEAD SCREW	
20	3	5/16-18 x 3/4" LG		STAINLESS STEEL HEX HEAD SCREW	
21	1	27-CL707W		VIBRATION SWITCH FIBERGLASS J-BOX	
22	1	420200-7		Vibration Switch Junction Box Enclosure Mounting Plate (Switch to Box)	
23	1	420100-1		420 STYLE EVAP SPRAY MANIFOLD	
24	1	1/2-13 x 3/4		STAINLESS STEEL SOCKET SET SCREW	
25	2	3/8-16 x 1-1/2" LG		STAINLESS STEEL HEX HEAD SCREW	
26	1	25-000046		18/8 FLEX CONTROL CABLE	
27	4	10-24 x 1/2" LG		STAINLESS STEEL HEX HEAD SCREW	
28	2	10-000042		3/8 SS EYEBOLT	
29	4	SHOP SUPPLIES		#10-32 x 3/4"LG	
30	4	SHOP SUPPLIES		5/16 SS LOCK WASHER	
31	1	61-999004S		3/8 316 SS SOCKET HEAD PIPE PLUG	
32	1	05-420EVAP		EVAP 420 16 x 9	
33	1	05-420001		420 RAINDROP DECAL REFLECTIVE	
34	1	05-000100		420 EVAPORATOR /SERIAL # PLATE	
35	2	23-001050		1/2 AVECO CLAMP	
36	3	22-007010		3/4" FLEX CONDUIT (FT)	
	16			3/4" FLEXIBLE CONDUIT (FT - BOOM)	
37	1	SHOP SUPPLIES		1" TO 3/4" BUSHING	

WEIGHT: LB



### 420 EVAPORATOR HEAD ASM

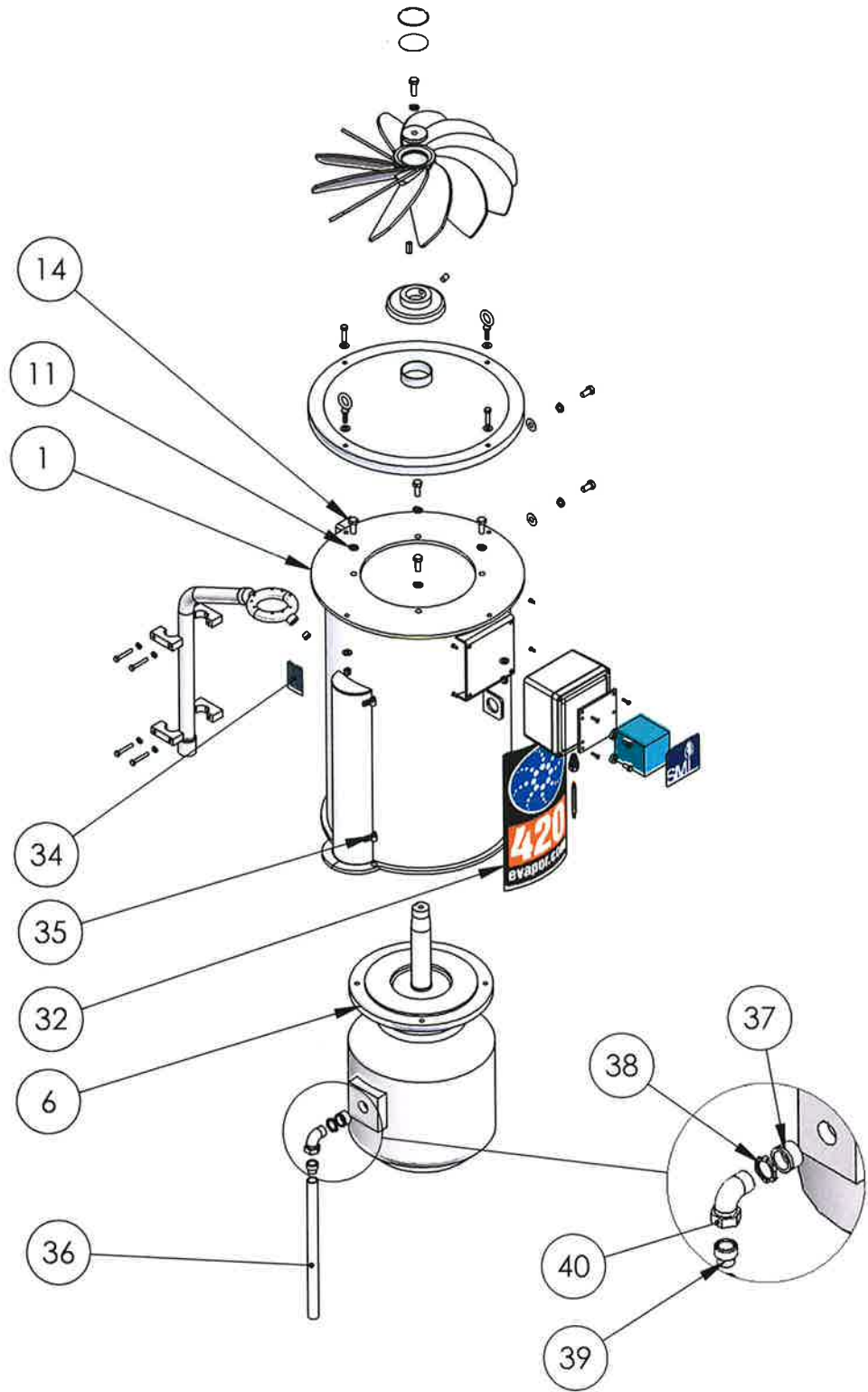
ITEM NO.	QTY.	PART NUMBER	Rev	DESCRIPTION	INITIALS
38	1	22-008001		3/4" CONDUIT LOCKNUT	
39	1	SHOP SUPPLIES		3/4" STEEL FERRULE	
40	1	SHOP SUPPLIES		3/4" 90DEG CONDUIT ELBOW	
41	1	340003-2M		PRE-COATED 20 SS EVAP FAN	



# 420 EVAPORATOR HEAD ASM

WEIGHT: 616.95 LB

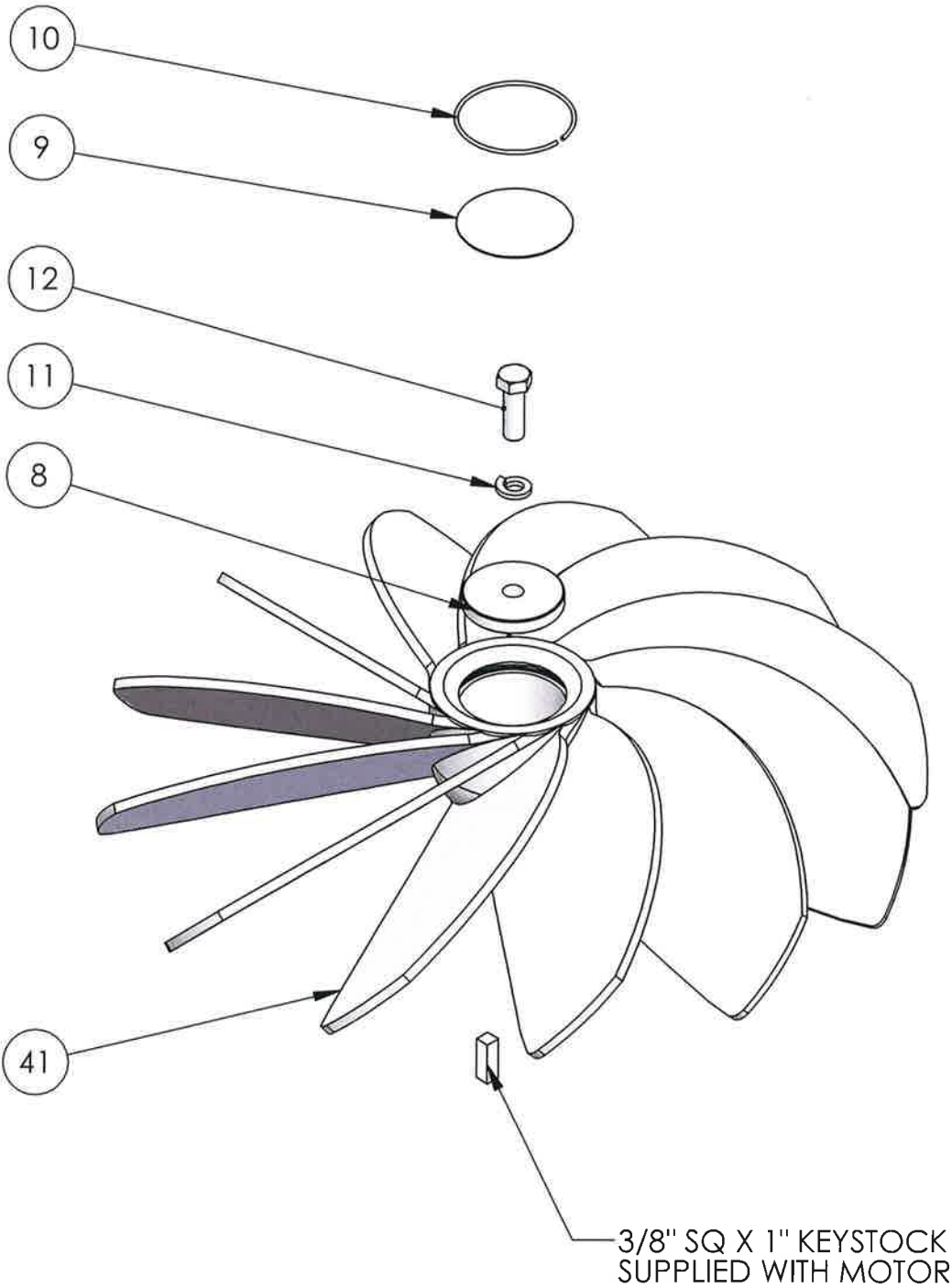




# 420 EVAPORATOR HEAD ASM

WEIGHT: 616.95 LB



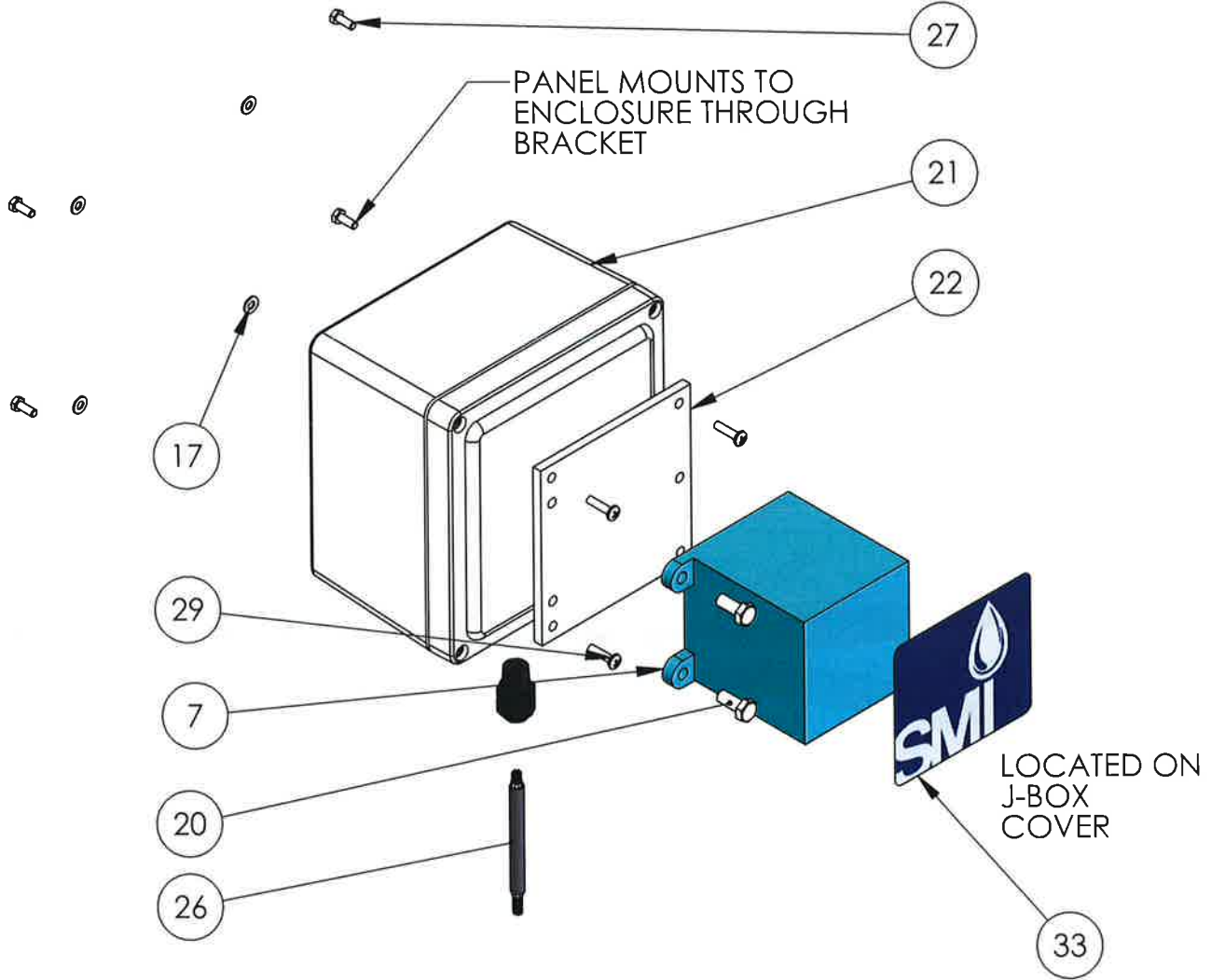


# 420 EVAPORATOR HEAD ASM

WEIGHT: 616.95 LB



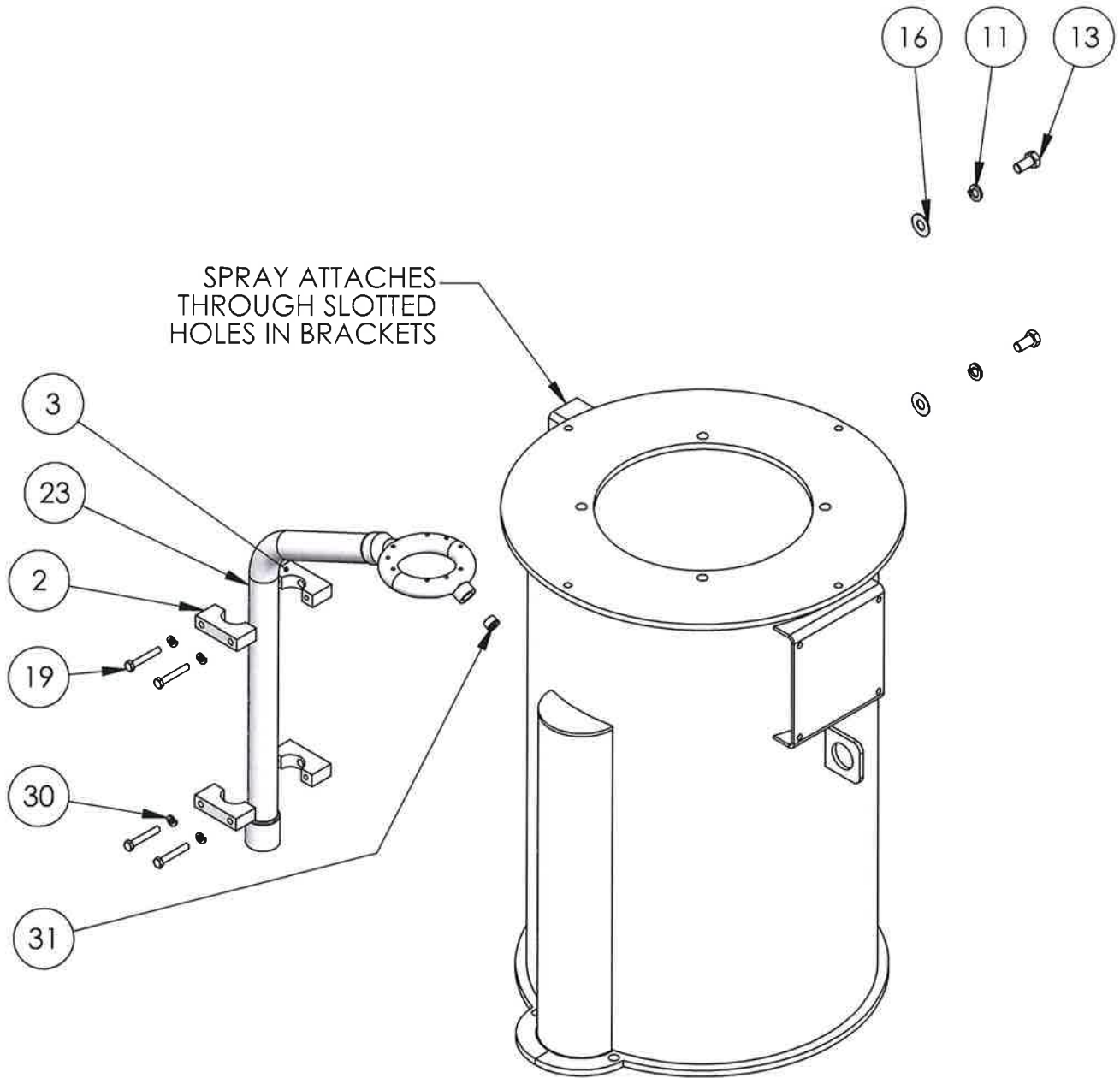




# 420 EVAPORATOR HEAD ASM

WEIGHT: 616.95 LB

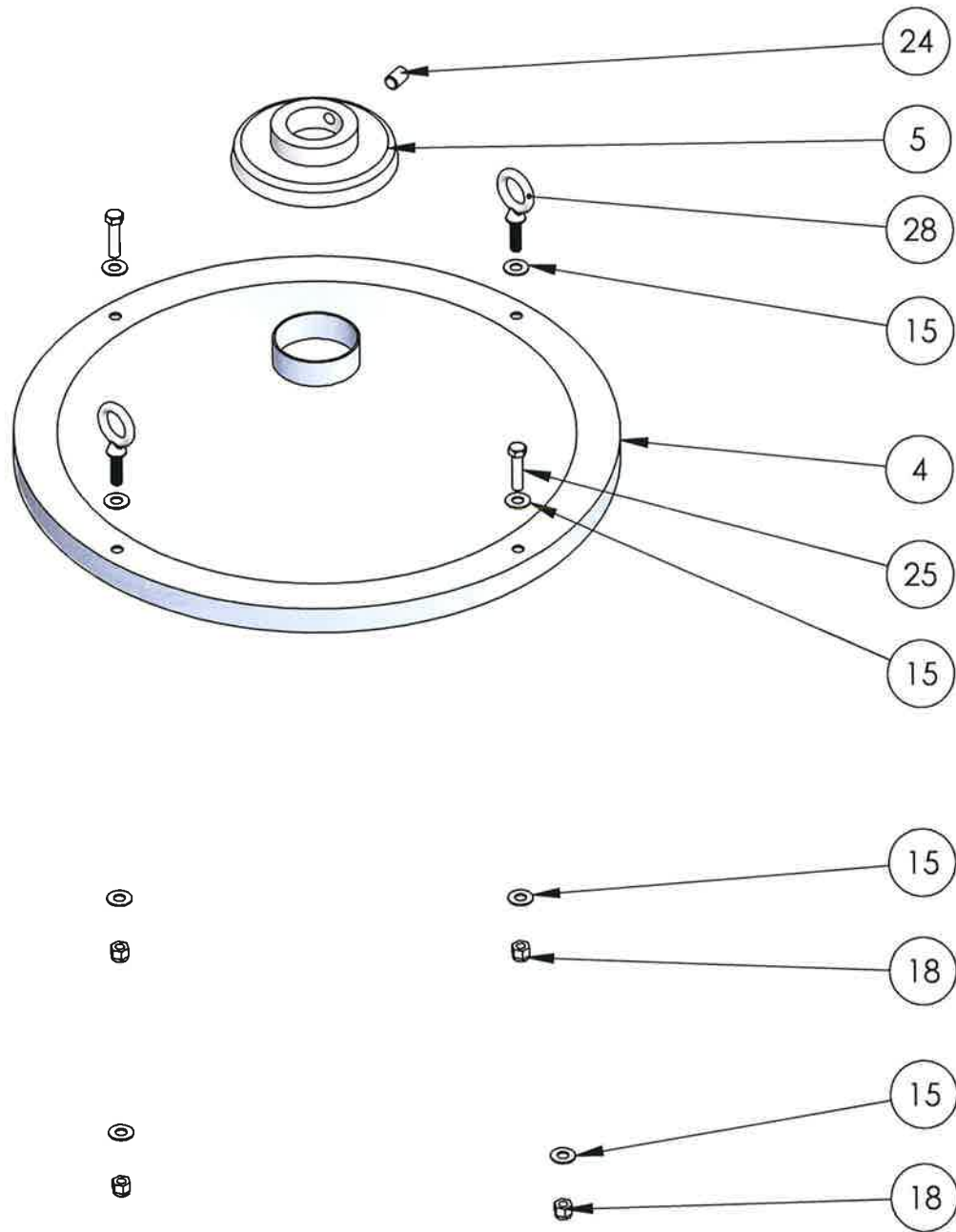




# 420 EVAPORATOR HEAD ASM

WEIGHT: 616.95 LB

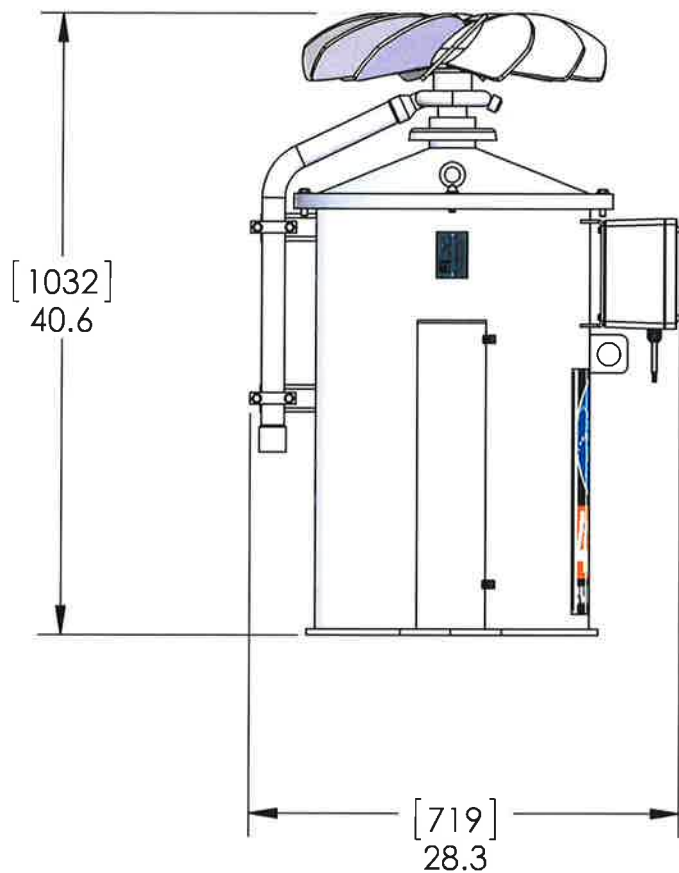
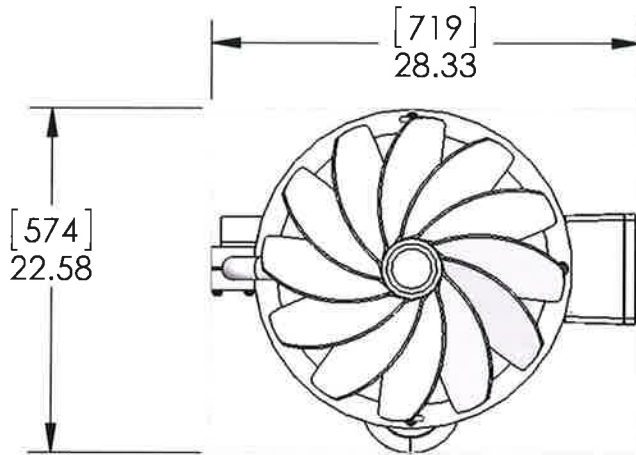




# 420 EVAPORATOR HEAD ASM

WEIGHT: 616.95 LB





# 420 EVAPORATOR HEAD ASM

WEIGHT: 616.95 LB



DOCUMENT NO.: 420-2HP-FILTER

REV. LEVEL:

REV. DATE:

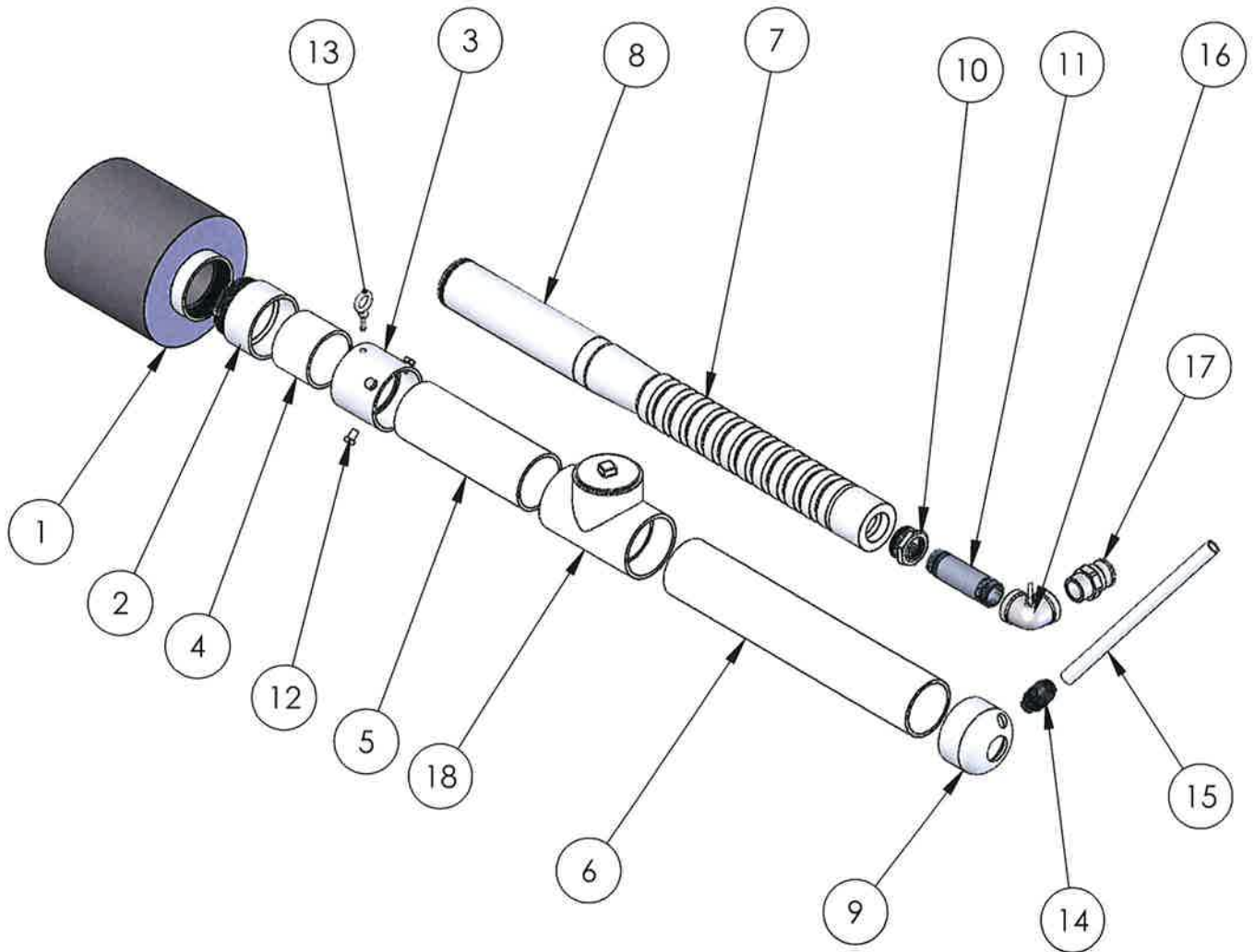
## 2HP 60 HZ PUMP SLEEVE W/FILTER - 2014

ITEM NO.	QTY.	PART NUMBER	Rev	DESCRIPTION	INITIALS
1	1	420604-7		2 HP 4" PUMP SLEEVE FILTER	
2	1	67-000021		4" PVC THREADED ADAPTER	
3	1	67-000019		4" PVC STRAIGHT COUPLER	
4	1	67-000017-4		3.5 LG. SCHED 40 PVC PIPE	
5	1	67-000017-4		12.5 LG. SCHED 40 PVC PIPE	
6	1	67-000017-4		24.5 LG. SCHED 40 PVC PIPE	
7	1	63-2.0/400/50		2HP, 50Hz, 9 STAGE SUBMERSIBLE PUMP	
8	1	63-2.0/400/50M		2hp 400V 50Hz PUMP MOTOR	
9	1	67-000018		4" PVC CAP	
10	1	61-006004SS		2" TO 1-1/2" STAINLESS STEEL REDUCER BUSHING	
11	1	61-001030		1-1/2" x 6" SS NIPPLE	
12	4	1/2-13 x 3/4" LG		HEX HEAD CAP SCREW, STAINLESS STEEL	
13	1	10-000042		3/8 SS EYEBOLT	
14	1	22-007011		3/4 PLASTIC CONDUIT FITTING	
15	3	22-007010		3/4" FLEX CONDUIT (FT)	
16	1	420605-1		ELBOW AND EYE NUT ASSEMBLY	
17	1	60-101152		1 1/2 TYPE F QD - STAINLESS STEEL	
18	1	67-000020		4" CLEANOUT TEE & PLUG	

WEIGHT: LB/KG


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### 2HP 50 HZ PUMP SLEEVE W/FILTER - 2014

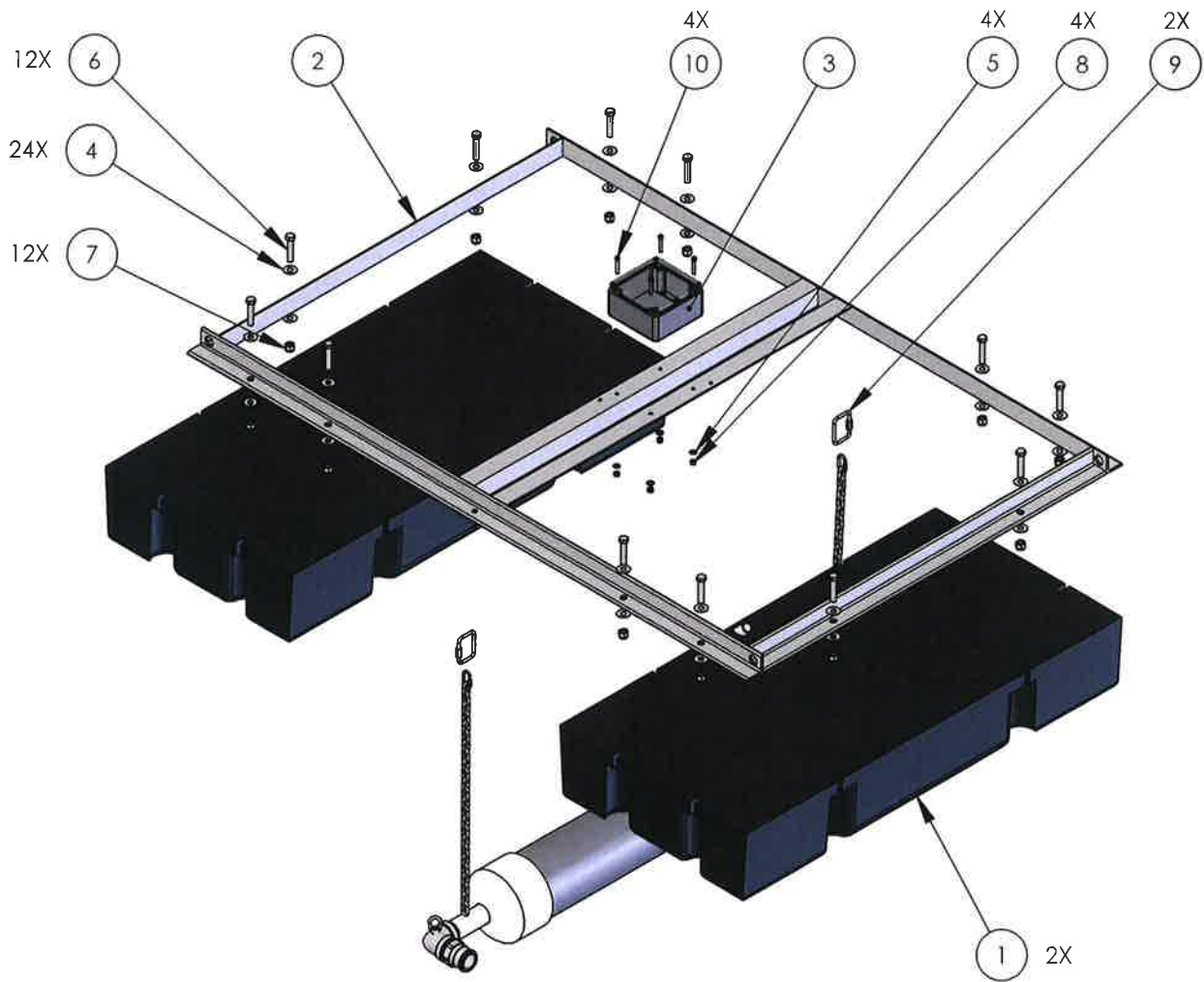
WEIGHT: 61.78 LB/ KG



ITEM NO.	QTY.	PART NUMBER	Rev	DESCRIPTION	INITIALS
1	2	420600-2		SCOTTCO MARINE FLOAT DRUM	
2	1	420606-1		FLOAT FRAME	
3	1	27-000107		J-BOX	
4	24	.50 Nom ID		SS FLAT WASHER	
5	4	.25 Nom ID		SS FLAT WASHER	
6	12	1/2-13 x 2-1/2" LG		STAINLESS STEEL HEX HEAD SCREW	
7	12	1/2-13 THD		HEX LOCK NUT, STAINLESS STEEL NYLON INSERT	
8	4	1/4-20 THD		HEX LOCK NUT, STAINLESS STEEL NYLON INSERT	
9	2	10-000046		5/16 SS SQUARE QUICK LINK	
10	4	1/4-20 x 1-1/2" LG		SHCS, STAINLESS STEEL	

WEIGHT: LB


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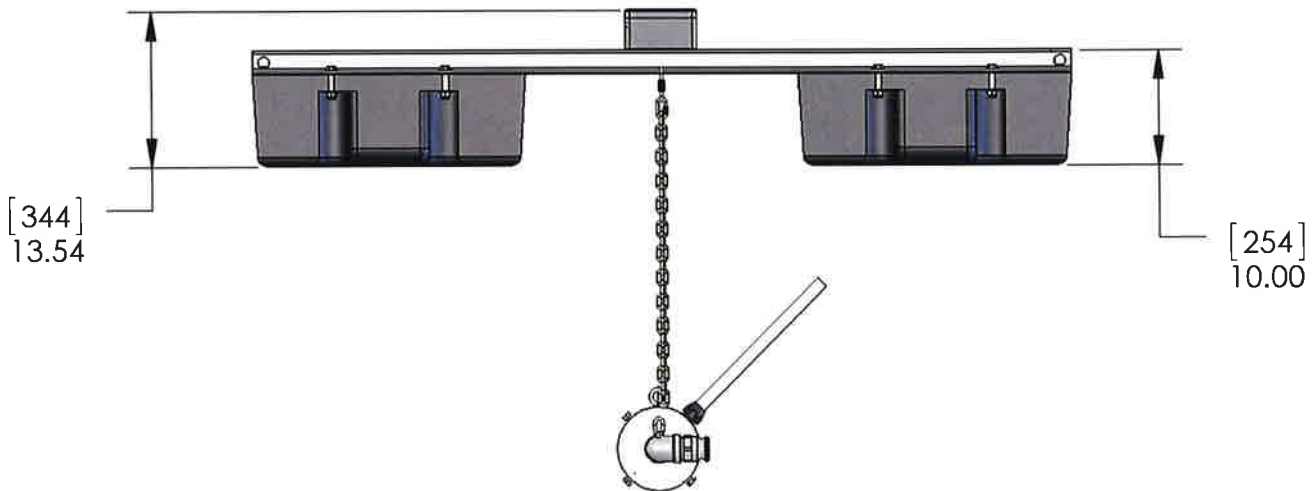
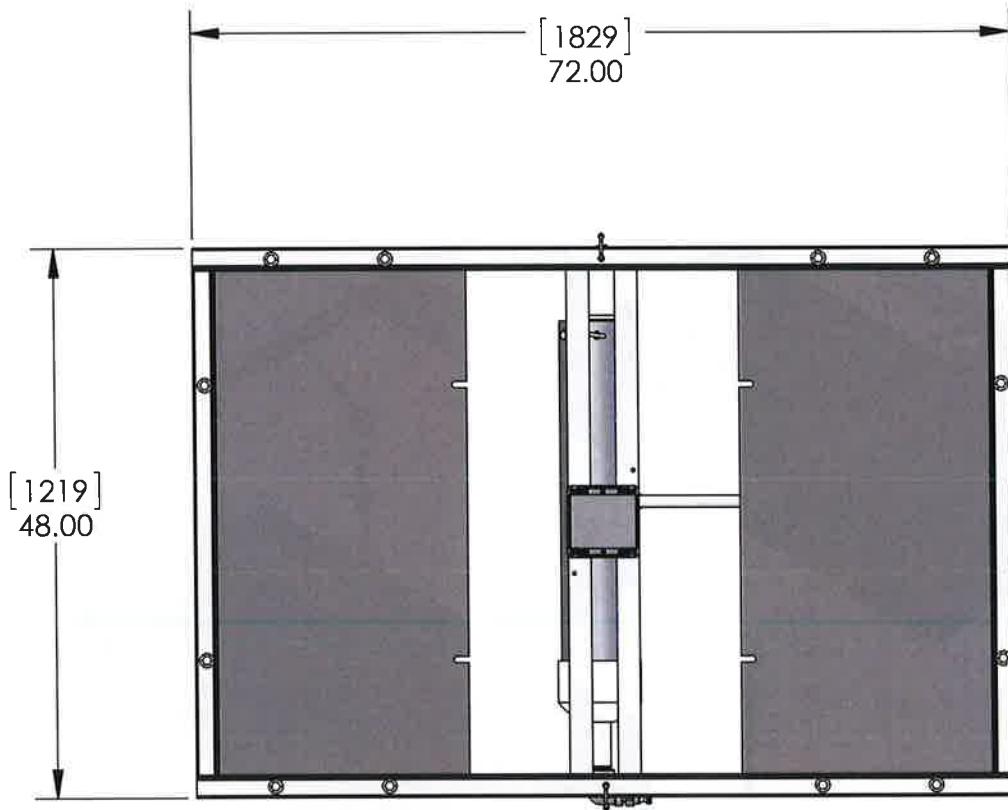


SIZE OF PUMP PROVIDED PER CUSTOMER  
REQUEST, CHAIN AND QUICK LINKS INCLUDED  
IN EACH PUMP ASSEMBLY

# PUMP FLOAT ASM

WEIGHT: 197.95 LB



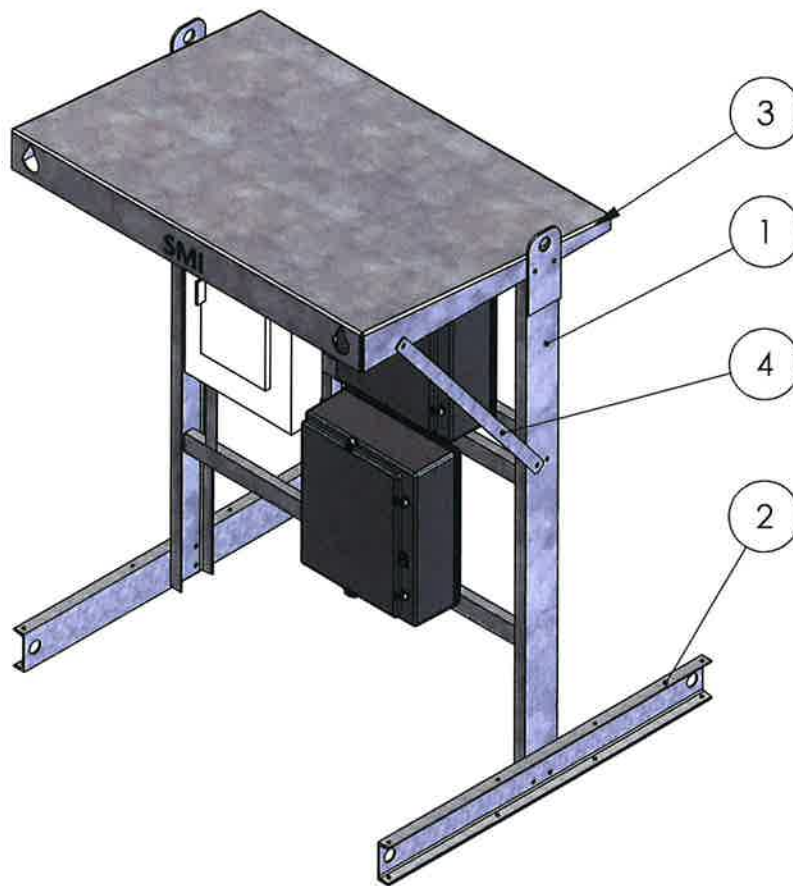


WEIGHT: 197.95 LB

# PUMP FLOAT ASM



ITEM NO.	QTY.	PART NUMBER	Rev	DESCRIPTION	INITIALS
1	1	425200-2		5.5FT WIDE SHELTER FRAME	
2	2	425100-1		SHELTER LEG	
3	1	425300-2		5.5 FT SHELTER ROOF	
4	2	425100-2		SHELTER ROOF BRACE	



# 5.5FT GALVANIZED PANEL SHELTER ASM

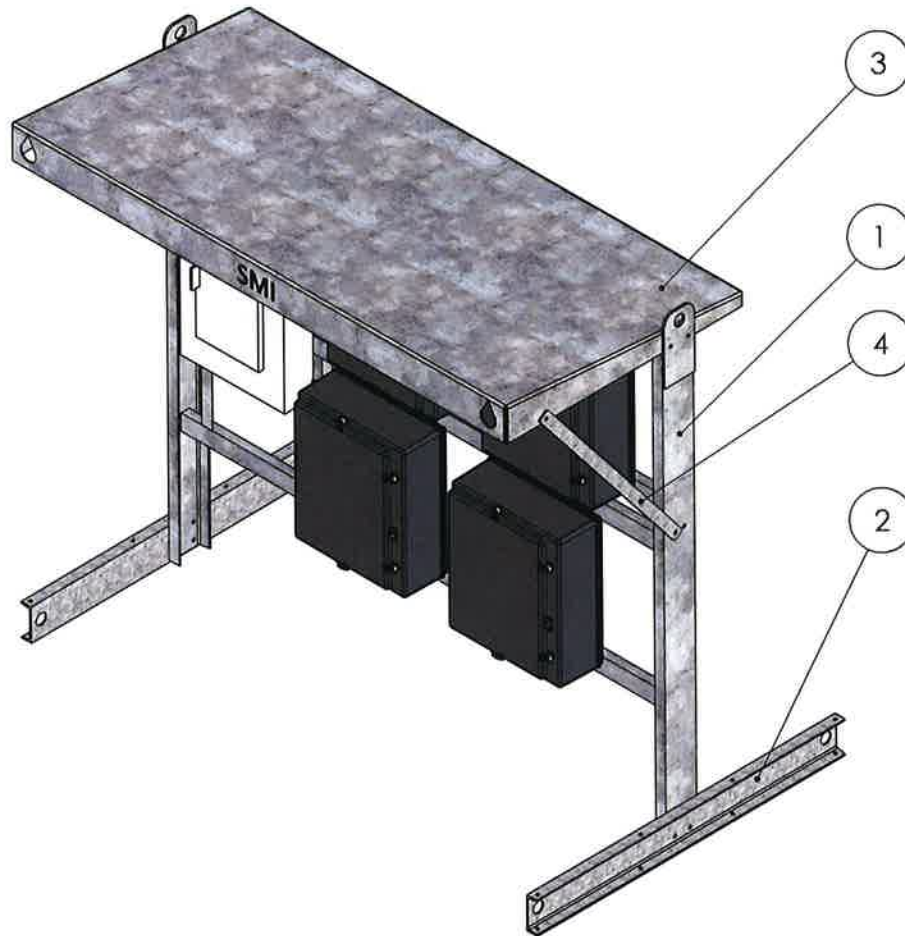
WEIGHT: 1969.88 LB





8FT GALVANIZED PANEL SHELTER ASM

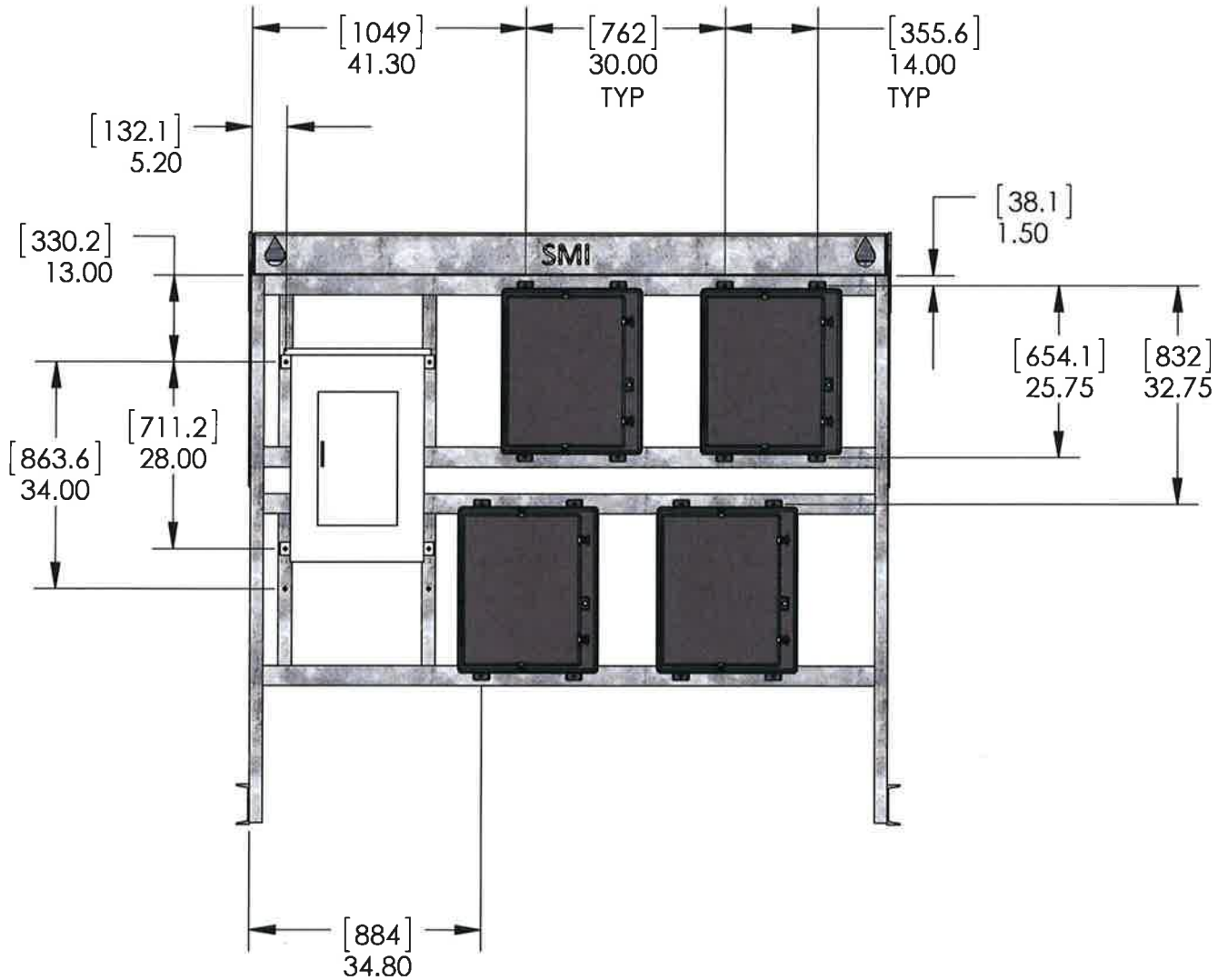
ITEM NO.	QTY.	PART NUMBER	Rev	DESCRIPTION	INITIALS
1	1	425200-1		8FT WIDE SHELTER FRAME	
2	2	425100-1		SHELTER LEG	
3	1	425300-1		8 FT SHELTER ROOF	
4	2	425100-2		SHELTER ROOF BRACE	



8FT GALVANIZED PANEL SHELTER ASM

WEIGHT: 2380.62 LB/ KG





### 8FT GALVANIZED PANEL SHELTER ASM

WEIGHT: 2380.62 LB/ KG



## 420F EVAPORATOR MASTER CONTROL PANEL

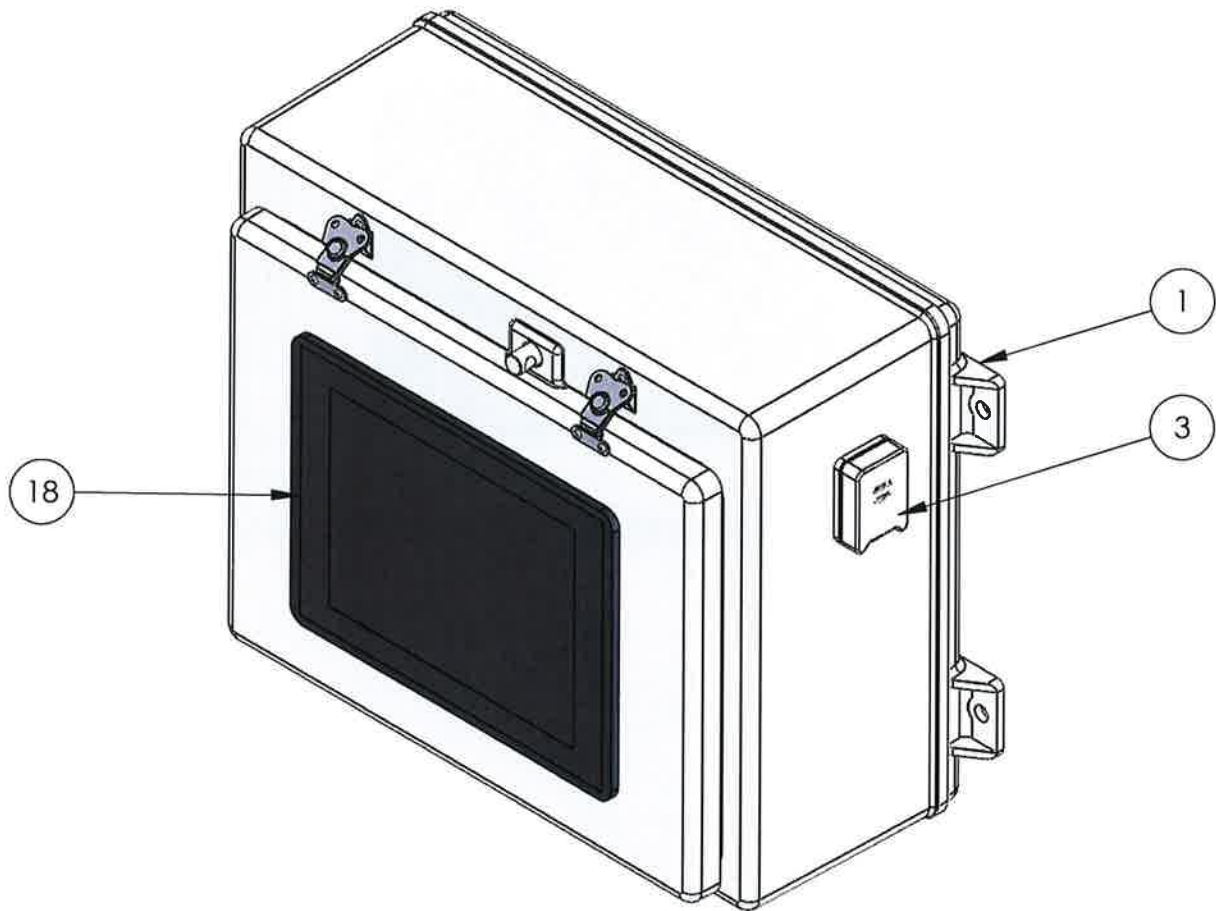
ITEM NO.	QTY.	PART NUMBER	Rev	DESCRIPTION	INITIALS
1	1	27-N20168HWT		STAHLIN NEMA 4X FBGLS ENCLOSURE	
2	1	27-BP2016CS		BP2016CS STAHLIN STEEL BACK PANEL	
3	1	27-BV4XKIT		BV4XKIT STAHLIN BREATHER VENT	
4	1	23-1291166		MC25X37WH2 WIRING DUCT	
5	2	23-1291166		MC25X37WH2 WIRING DUCT	
6	1	23-199DR1		35mm DIN RAIL	
7	1	23-199DR1		35mm DIN RAIL	
8	1	23-199DR1		35mm DIN RAIL	
9	1	26-000142		115/230 24V 100VA TRANSFORMER	
10	1	20-CS10.241		CS10.241 PULS 24VDC 240W PS	
11	1	20-UBC10.241		UBC10.241 PULS DC UPS W/BATTERY	
12	6	23-004004		1492 EA J35 END BLOCKS	
13	1	20-DIN_RECEPT		1671K13 DIN DUPLEX RECEPTACLE	
14	1	20-SD-15A-24		MW SD-15A-24 DC-DC CONVERTER	
15	12	23-004005		1492-J4 AB 4mm BOX LUG BLOCK	
16	1	23-004000		1492 JG6 AB 6mm GROUNDING BLOCK	
17	1	20-108TX		104TX N-TRON ETHERNET SWITCH	
18	1	06-HMI5121P		HMI5121P MAPLE 12.1" TOUCH HMI	
19	1	06-1762-IF4		4 CHANNEL ANALOG INPUT 1100/1200/1400 MICROLOGIX	

WEIGHT: LB/ KG


**Evaporative  
Solutions**
**E V A P O R . C O M**

420F EVAPORATOR MASTER CONTROL PANEL

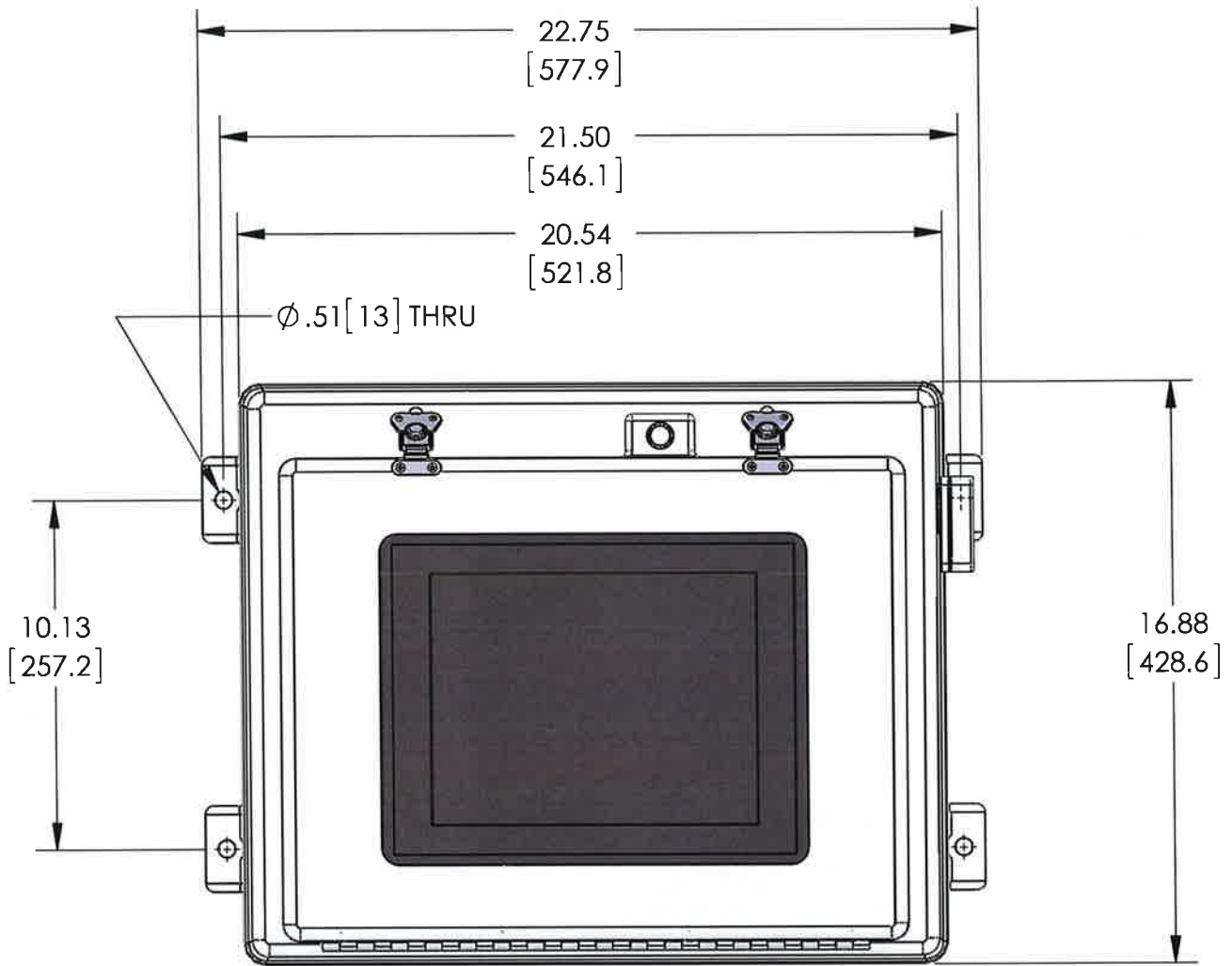
ITEM NO.	QTY.	PART NUMBER	Rev	DESCRIPTION	INITIALS
20	1	06-1766L32BXB		MICROLOGIX 1400 24VDC PROCESSOR	
21	1	20-004119		1492 SP1C050 AB 5 AMP 1P C CURVE SUP PROTECTOR	
22	1	23-004001		1492 JG10 10mm GROUNDING BLOCK	
23	2	23-004014		1492-J6 AB 6mm BOX LUG BLOCK	



**420F EVAPORATOR - NO PC CONTROL  
PANEL - NO TRANSFORMER**

WEIGHT: 133.66 LB/ KG



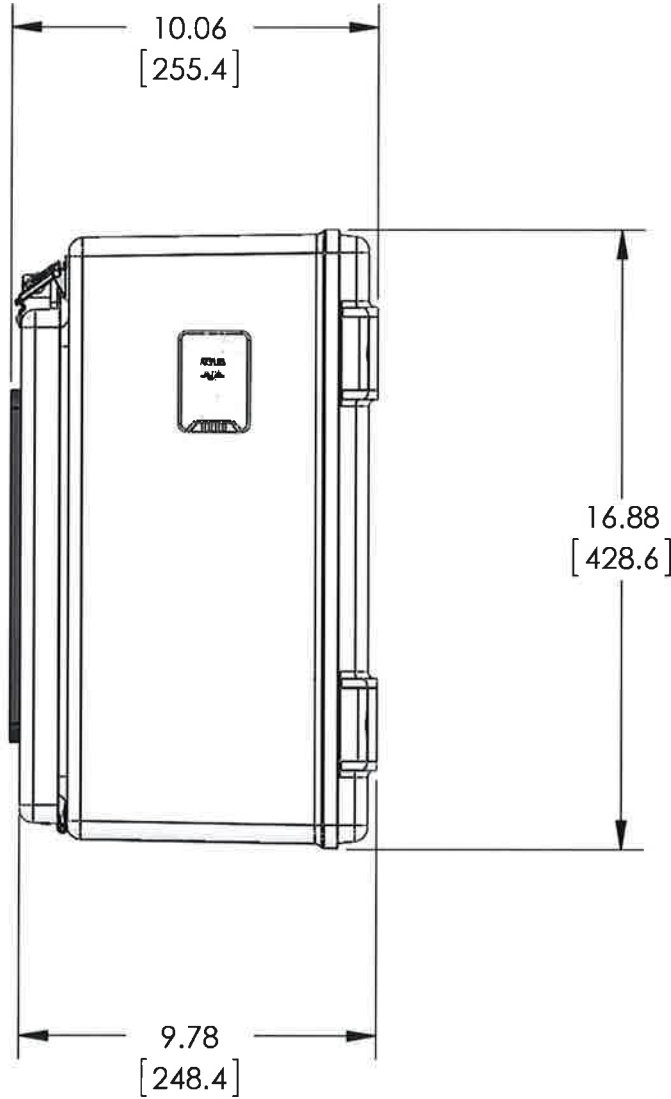


**420F EVAPORATOR - NO PC CONTROL  
PANEL - NO TRANSFORMER**

WEIGHT: 133.66 LB/ KG



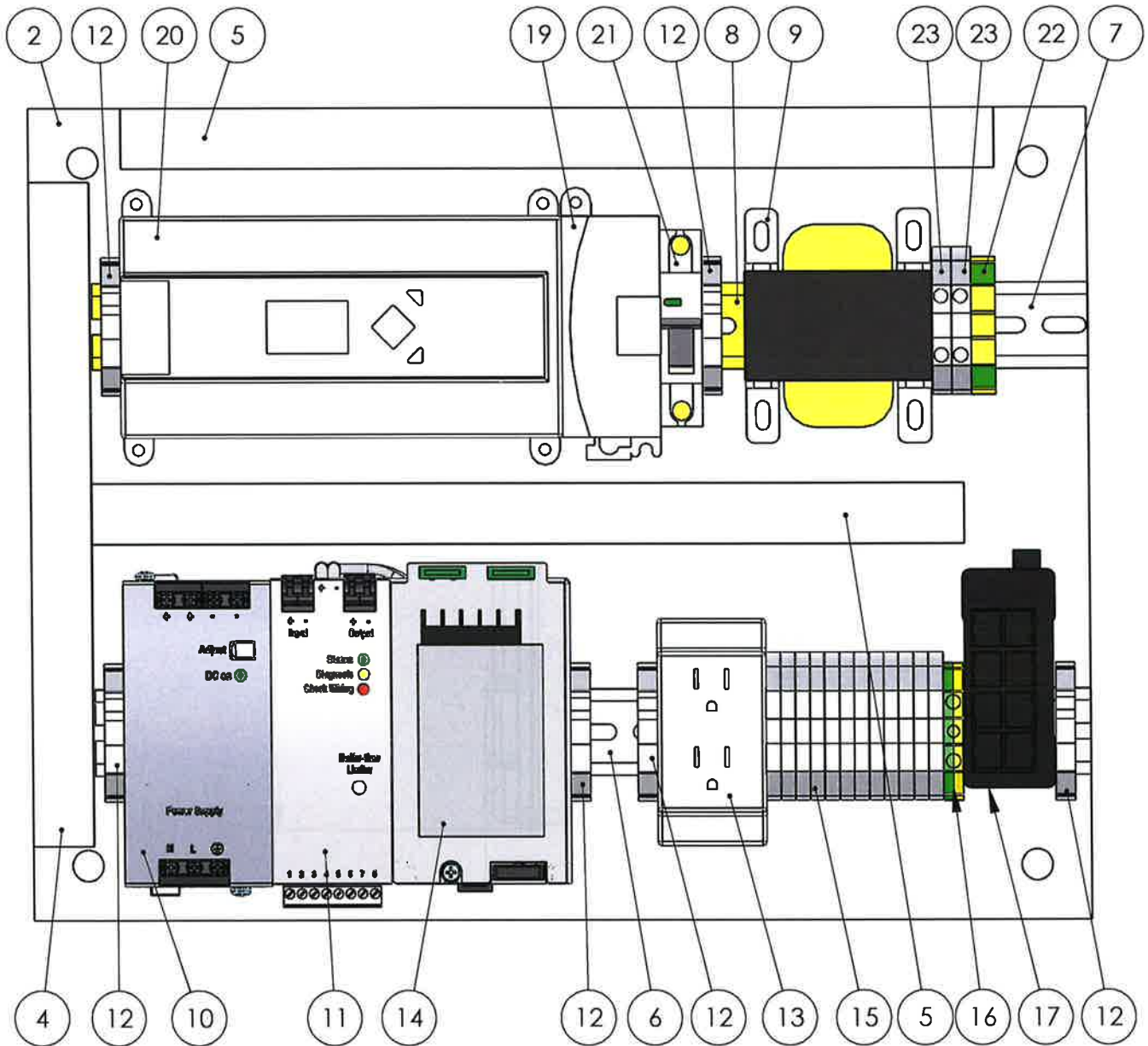




**420F EVAPORATOR - NO PC CONTROL  
PANEL - NO TRANSFORMER**

WEIGHT: 133.66 LB/ KG

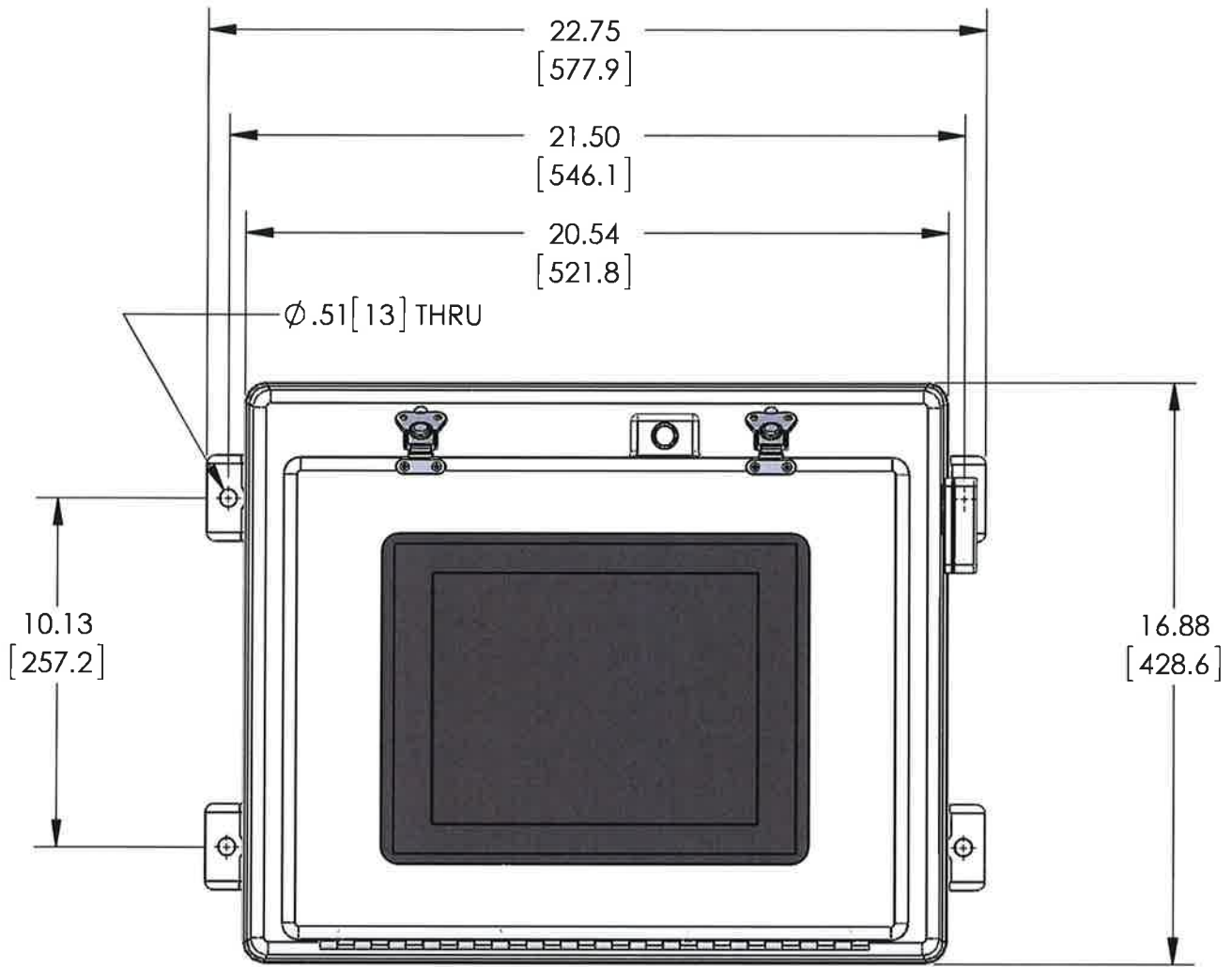




**420F EVAPORATOR - NO PC CONTROL  
PANEL - NO TRANSFORMER**

WEIGHT: 133.66 LB/ KG





### 420F MASTER CONTROL PANEL

WEIGHT: 133.66 LB/ KG



## MACHINE CONTROL PANEL - 420 EVAP

ITEM NO.	QTY.	PART NUMBER	Rev	DESCRIPTION	INITIALS
1	1	27-N24208-MODx		STAHLIN NEMA 4X FBGLS ENCLOSURE	
2	1	27-BP2420CS-MOD		BP2420CS STAHLIN STEEL BACK PANEL	
3	2	27-BV4XKIT		BV4XKIT STAHLIN BREATHER VENT	
4	1	05-000005		DANGER HIGH VOLTAGE DECAL	
5	1	05-000053		ELECTRICAL SHOCK DECAL	
6	1	05-420001		420 RAINDROP DECAL REFLECTIVE	
7	1	20-004008		100 C30D 10 AB 20HP CONTACTOR NC	
8	1	20-004018		194E-A80-1753-6N 80 AMP LOADBREAK SWITCH	
9	1	20-004040		140M F8E C45 AB 32-45 AMP CIRCUIT PROTECTOR	
10	1	20-004119		1492 SP1C050 AB 5 AMP 1P C CURVE SUP PROTECTOR	
11	1	20-200999		800FX01 ADD-ON CONTACT BLOCK	
12	1	20-201000		800FX10 ADD-ON CONTACT BLOCK NO	
13	1	20-201001		800F-ALP MOUNTING BASE FOR BLOCKS AB	
14	1	23-199DR1		35mm DIN RAIL	
15	1	23-199DR1		35mm DIN RAIL	
16	1	23-199DR1		35mm DIN RAIL	
17	1	23-199DR1		35mm DIN RAIL	
18	1	23-1291162		MC25X62WH2 WIRING DUCT	
19	1	23-1291162		MC25X62WH2 WIRING DUCT	

WEIGHT: LB/ KG


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## MACHINE CONTROL PANEL - 420 EVAP

ITEM NO.	QTY.	PART NUMBER	Rev	DESCRIPTION	INITIALS
20	1	23-1291162		MC25X62WH2 WIRING DUCT	
21	1	23-1291166		MC25X37WH2 WIRING DUCT	
22	1	23-1291167		MC25X75WH2 WIRING DUCT	
23	1	20-201041		800FP-LMT44 E-STOP BUTTON	
24	1	20-201032		800F-N5R RED LED 120V LIGHT MODULE	
25	1	20-800F15YSE112		800F-15YSE112 E-STOP LEGEND PLATE	
26	1	20-P60BLWSADH12		P60BLWSADH122 POWER ON LEGEND	
27	1	20-201030		800FP-P7PN5W AB WHITE LED	
28	2	23-004001		1492 JG10 10mm GROUNDING BLOCK	
29	1	20-004117		1492-SP2C010 1 AMP 2P BREAKER	
30	1	20-004062		700-FEY2QU23 AB TIMER Y-DELTA	
31	1	20-ML60.241		ML60.241 PULS 24VDC 60W PS	
32	1	26-000122		110VA 415/440/480-120V 50/60HZ TRANSFORMER	
33	1	06-1763L16BWA		1763L16BWA MICROLOGIX 1100 PROCESSOR	
34	1	20-004026		140M-C2E-B63 4.0-6.3A MOTOR PROTECTOR	
35	1	20-004009		100-C30D01 AB 20 HP CONTACTOR NC	
36	1	20-004012		100-C23D01 120V NC AB CONTACTOR	
37	4	23-004010		1492-ERL35 AB END ANCHOR	
38	1	20-V1K12A00		V1K12A00 VFD OUTPUT FILTER	

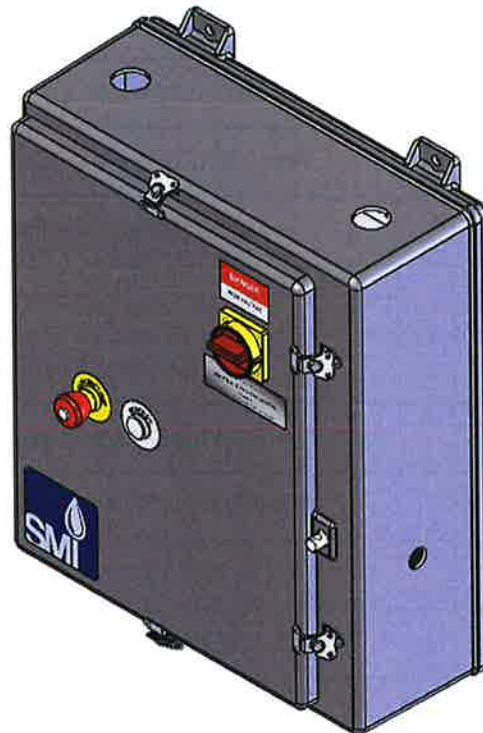
WEIGHT: LB/ KG


**Evaporative  
Solutions**
**E V A P O R . C O M**



MACHINE CONTROL PANEL - 420 EVAP

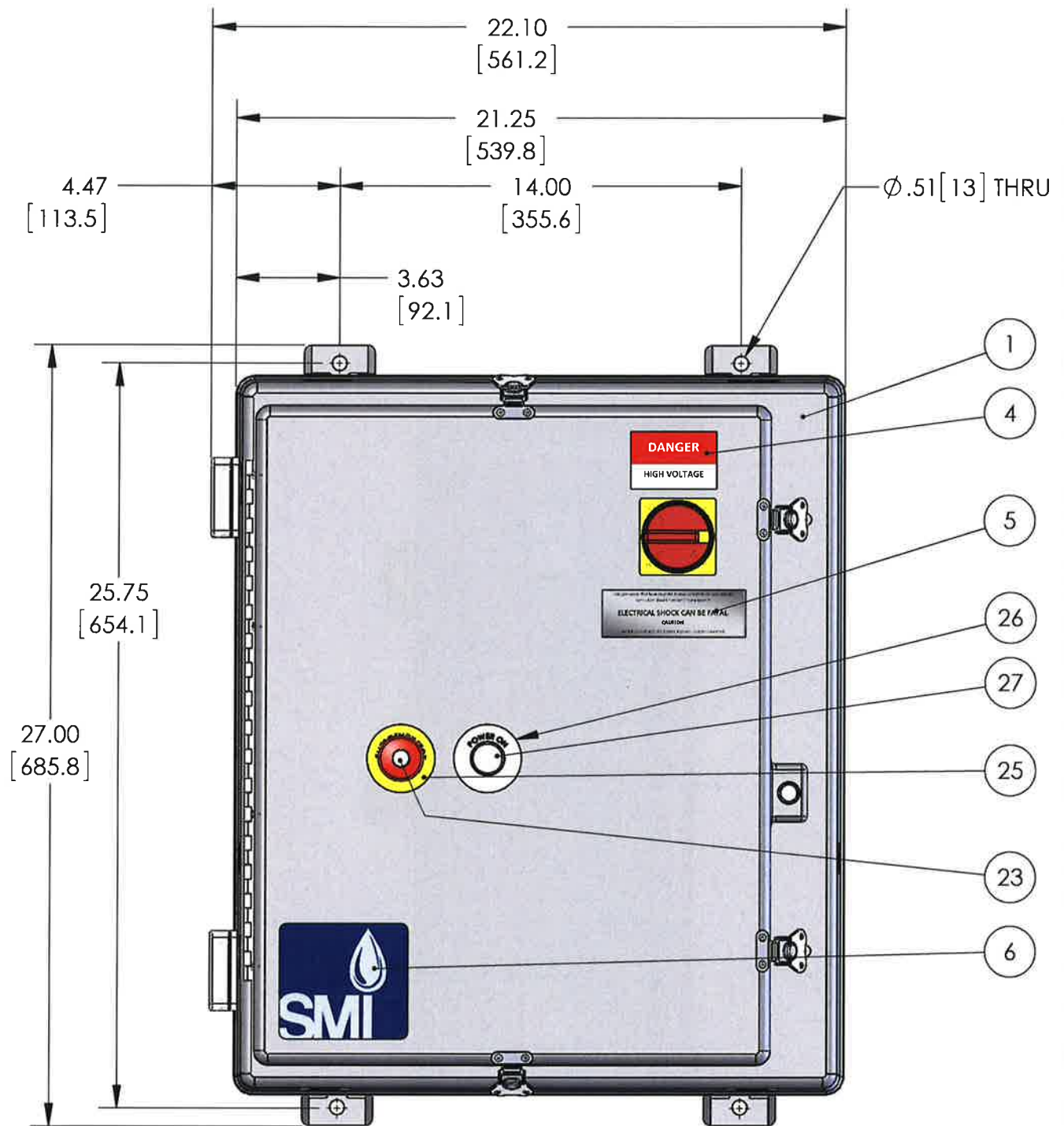
ITEM NO.	QTY.	PART NUMBER	Rev	DESCRIPTION	INITIALS
39	1	20-104TX		104TX N-TRON ETHERNET SWITCH	
40	14	23-004005		1492-J4 AB 4mm BOX LUG BLOCK	
41	1	20-25B-D6P0N104		25B-D6P0N104 VFD 380-480V 6 AMP	



**420 EVAP - AUTO 25HP/2HP VFD PANEL**

WEIGHT: 189.09 LB/ KG

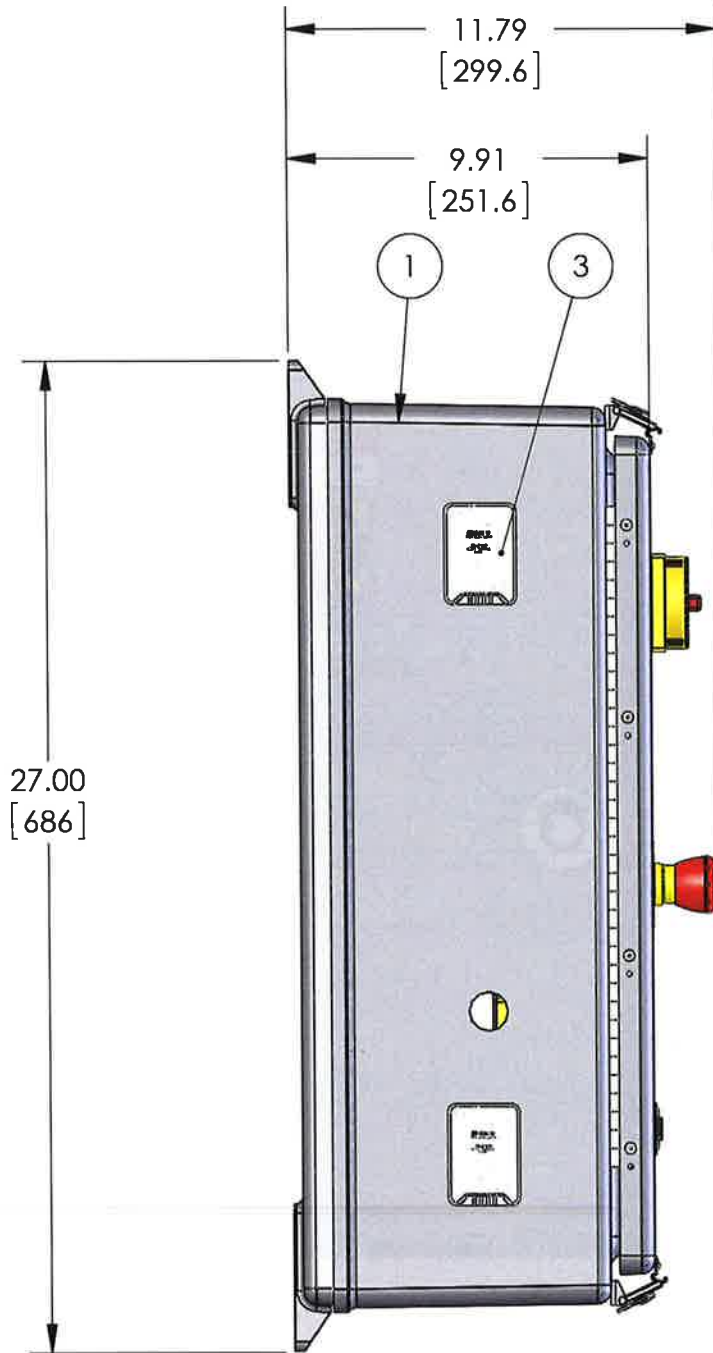




### 420 EVAP - AUTO 25HP/2HP VFD PANEL

WEIGHT: 189.09 LB/ KG

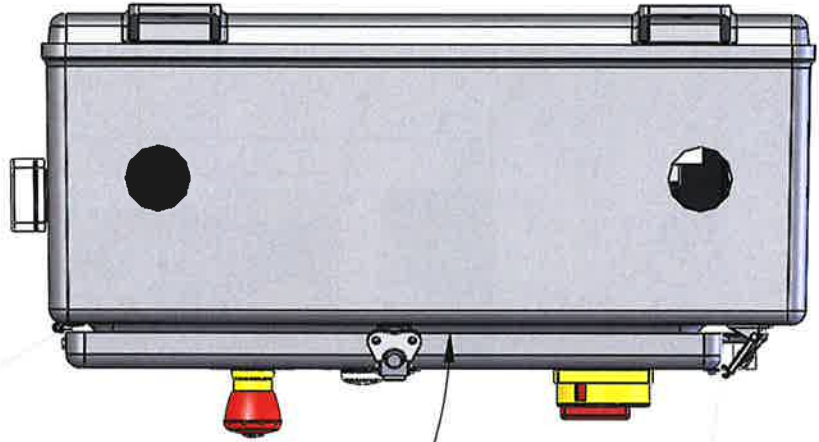




**420 EVAP - AUTO 25HP/2HP VFD PANEL**

WEIGHT: 189.09 LB/ KG



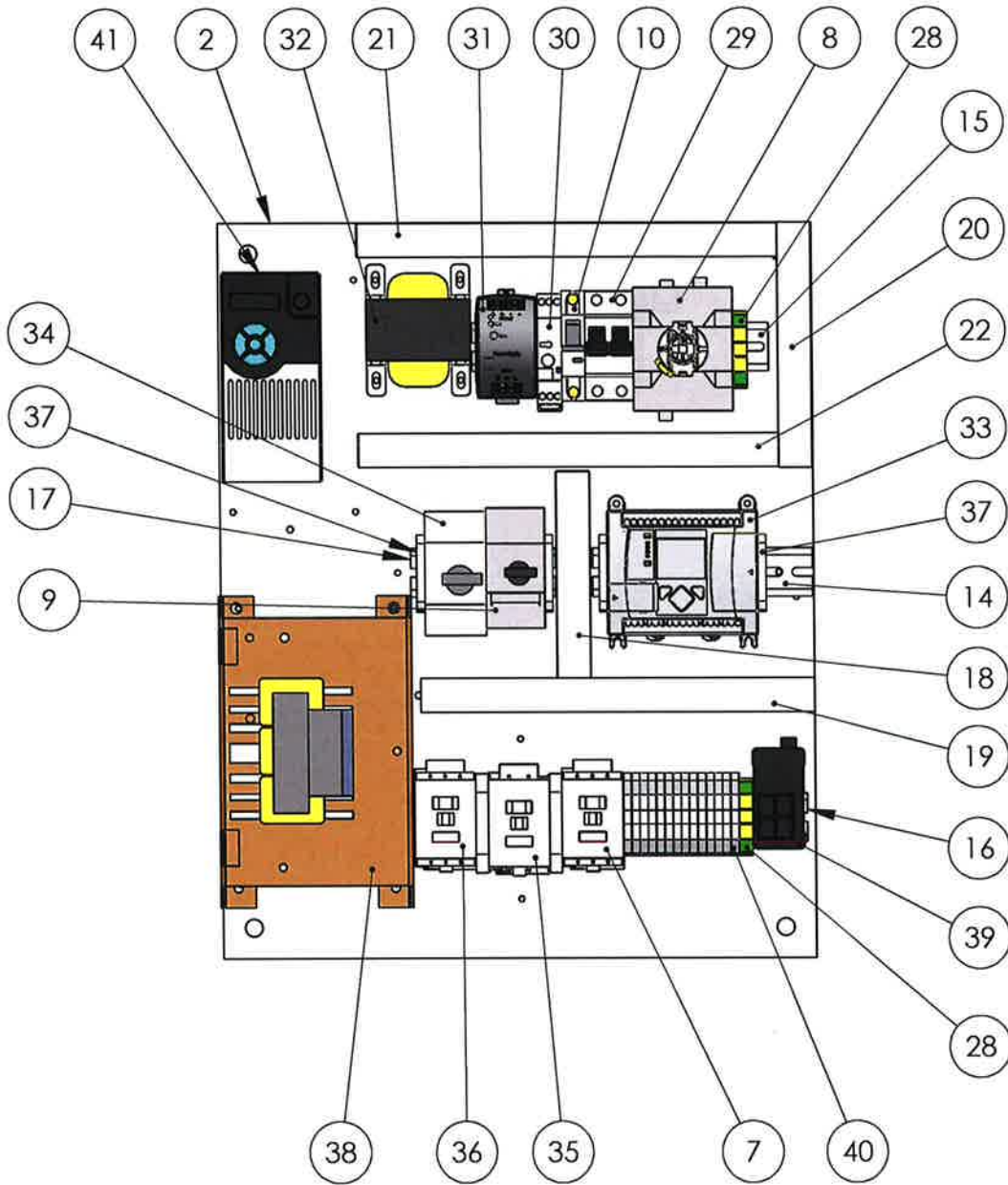


150°

**420 EVAP - AUTO 25HP/2HP VFD PANEL**

WEIGHT: 189.09 LB/ KG



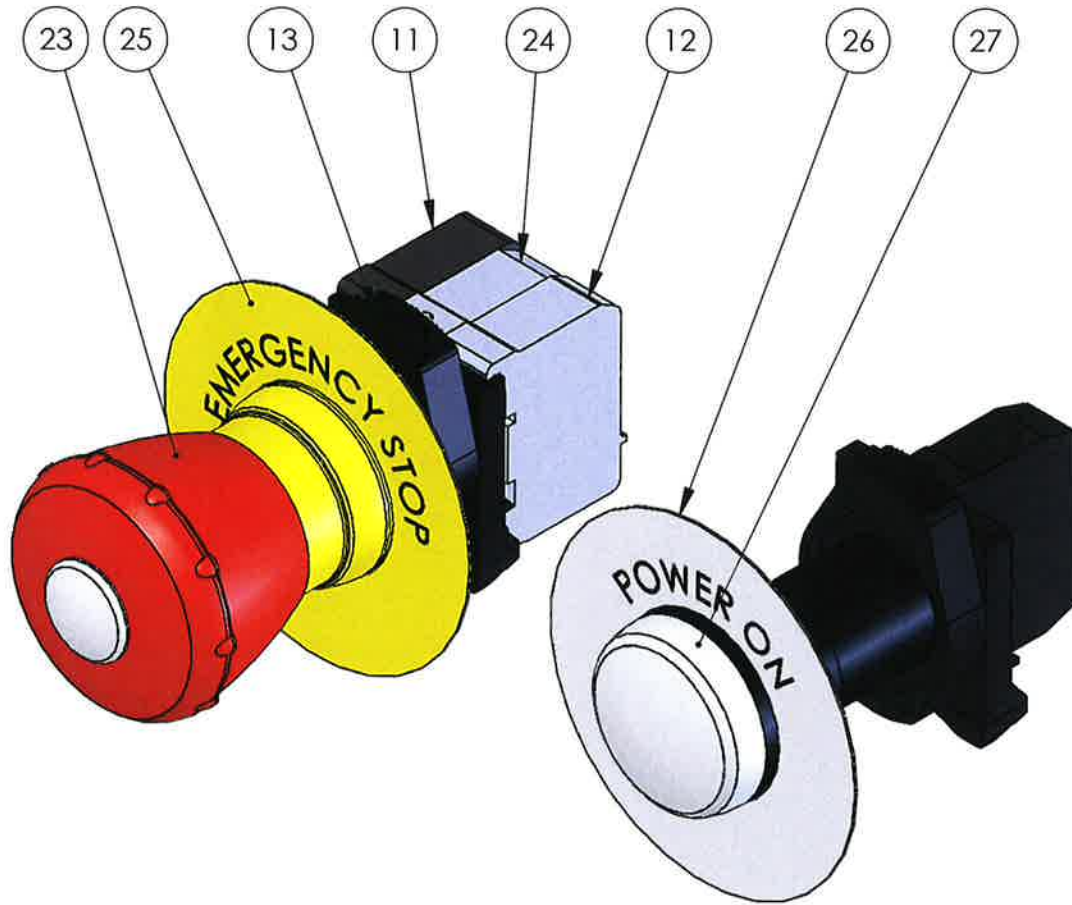


### 420 EVAP - AUTO 25HP/2HP VFD PANEL

WEIGHT: 189.09 LB/ KG





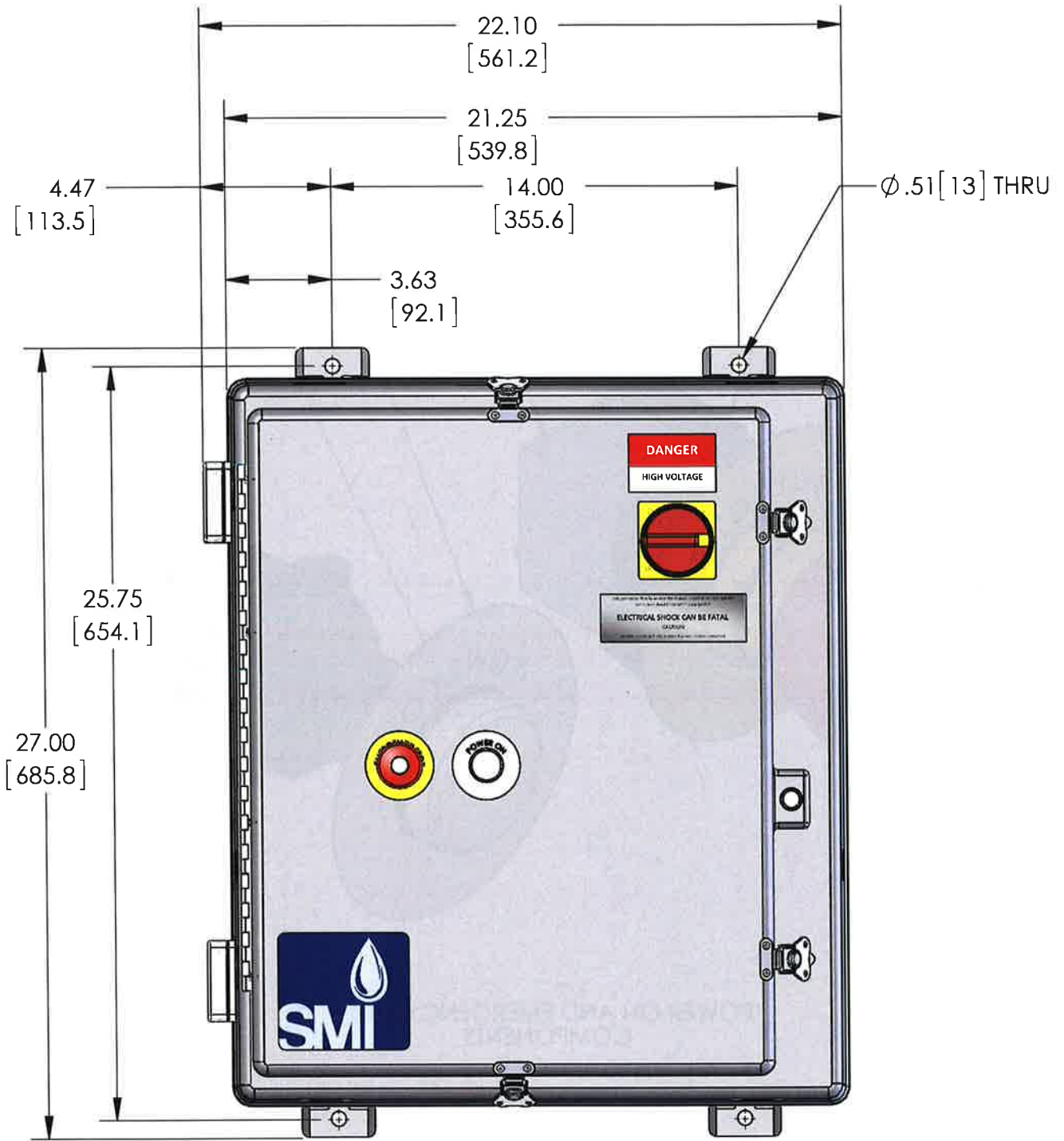


POWER ON AND EMERGENCY STOP COMPONENTS

**420 EVAP - AUTO 25HP/2HP VFD PANEL**

WEIGHT: 189.09 LB/ KG





**420 EVAP - AUTO 25HP/2HP VFD PANEL**

WEIGHT: 189.09 LB/ KG



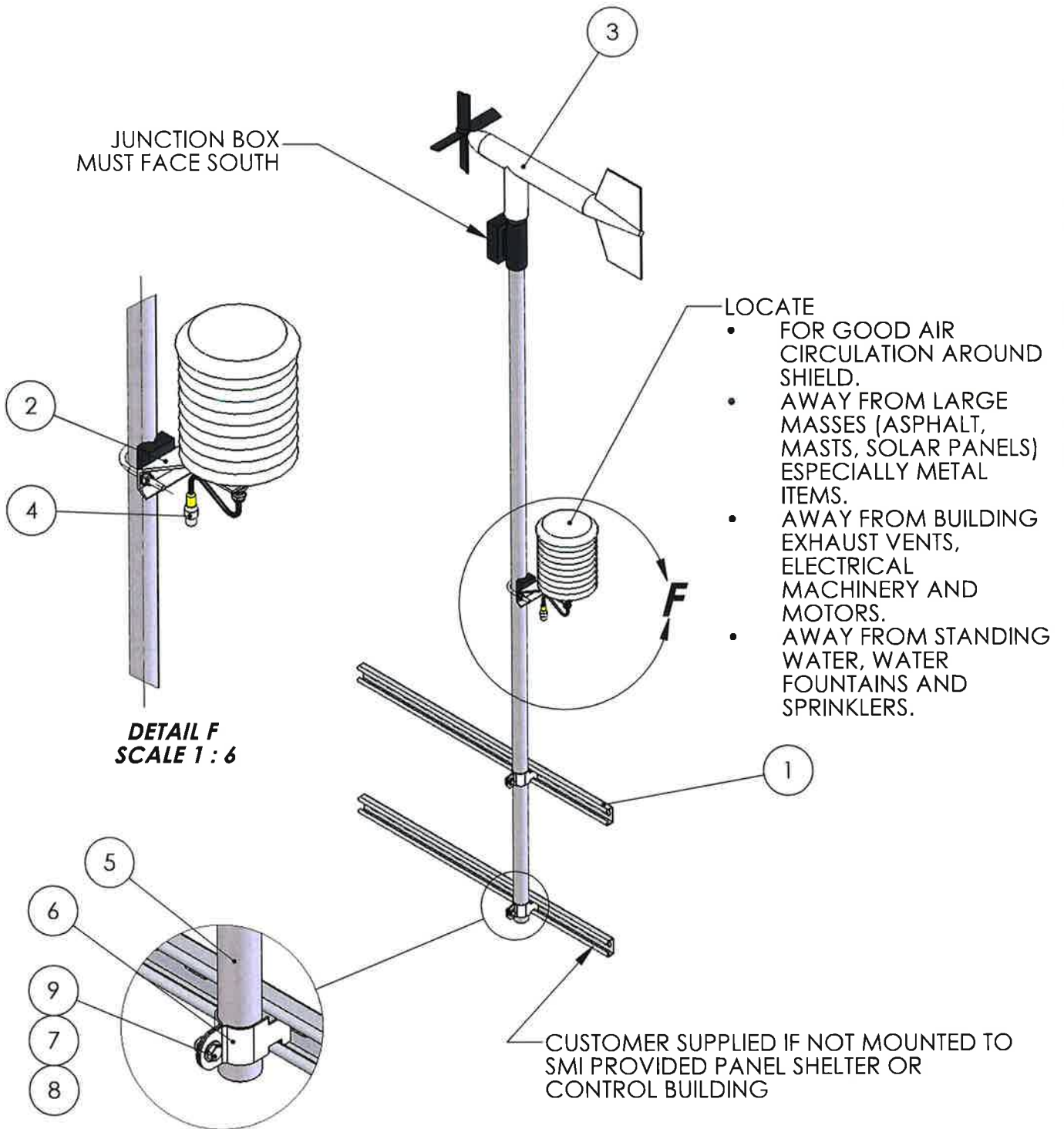
## WIND, TEMPERATURE &amp; HUMIDITY COMPONENTS

ITEM NO.	QTY.	PART NUMBER	Rev	DESCRIPTION	INITIALS
1	2	*MISC ELECTRICAL		1-5/8" X 13/16" P4100 UNISTRUT (OR EQUIVALENT) TO SUIT	
2	1	06-41003P		41003-P RADIATION SHIELD	
3	1	06-05103LP		05103LP WIND MONITOR	
4	1	06-KPC3/9-G17-1		GALLTEC HUMIDITY/TEMPERATURE SENSOR	
5	6	40-020010		1-1/4ODx.120w TUBEUNPIC/UNANL (FT)	
6	4	*MISC ELECTRICAL		#703-1 SUPER STRUT PIPE CLAMP (1.163 - 1.315 OD)	
7	4	.25 Nom ID		SS FLAT WASHER	
8	2	1/4-20 THD		HEX LOCK NUT, STAINLESS STEEL NYLON INSERT	
9	2	1/4-20 x 5/8" LG		STAINLESS STEEL HEX HEAD SCREW	
10	1	06-RK4.4T-3S653		10' (3m) SENSOR CORD W/ RECEPTACLE	
		06-RK4.4T-16S65		52' (16m) SENSOR CORD W/RECEPTACLE	
		06-RK4.4T-7S65		23' (7m) SENSOR CORD W/RECEPTACLE	

ITEM # 10 NOT SHOWN IN ASSEMBLY. PLUG END CONNECTS TO ITEM# 4. LENGTH REQUIRED DETERMINED BY MOUNTING TYPE AND LOCATION.

WEIGHT: LB/ KG





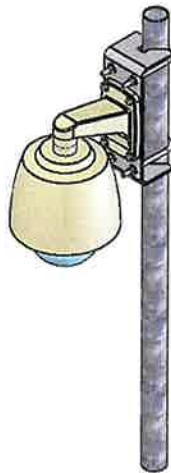
### WIND, TEMPERATURE, AND HUMIDITY SENSORS

WEIGHT: 41.02 LB/ KG



420 FLOAT FRAME COMPONENTS

ITEM NO.	QTY.	PART NUMBER	Rev	DESCRIPTION	INITIALS
1	1	*MISC ELECTRICAL		2" EMT CONDUIT	
2	1	06-PTZ SMI PTZ		CAMERA MOUNTING BRACKET	
3	2	06-PTZ U BOLT		CAMERA MOUNT U-BOLT	
4	1	06-PTZCAMERA		OUTDOOR DOME PTZ NETWORK CAMERA	
5	1	06-PTZBRACKET		PTZ NETWORK CAMERA BRACKET	
6	12	.38 Nom ID		SS FLAT WASHER	
7	8	3/8-16 THD		HEX LOCK NUT, STAINLESS STEEL NYLON INSERT	
8	4	3/8-16 x 1-1/2" LG		STAINLESS STEEL HEX HEAD SCREW	
9	1	*MISC ELECTRICAL		3/4" 2-HOLE CORD GRIP	
10	1	22-008001		3/4" CONDUIT LOCKNUT	
11	1	25-AUTO39		18/2 TYPE AWM AUTO STROBE LIGHT CORD (FT)	
12	1	*MISC ELECTRICAL		CAT5 CABLE	

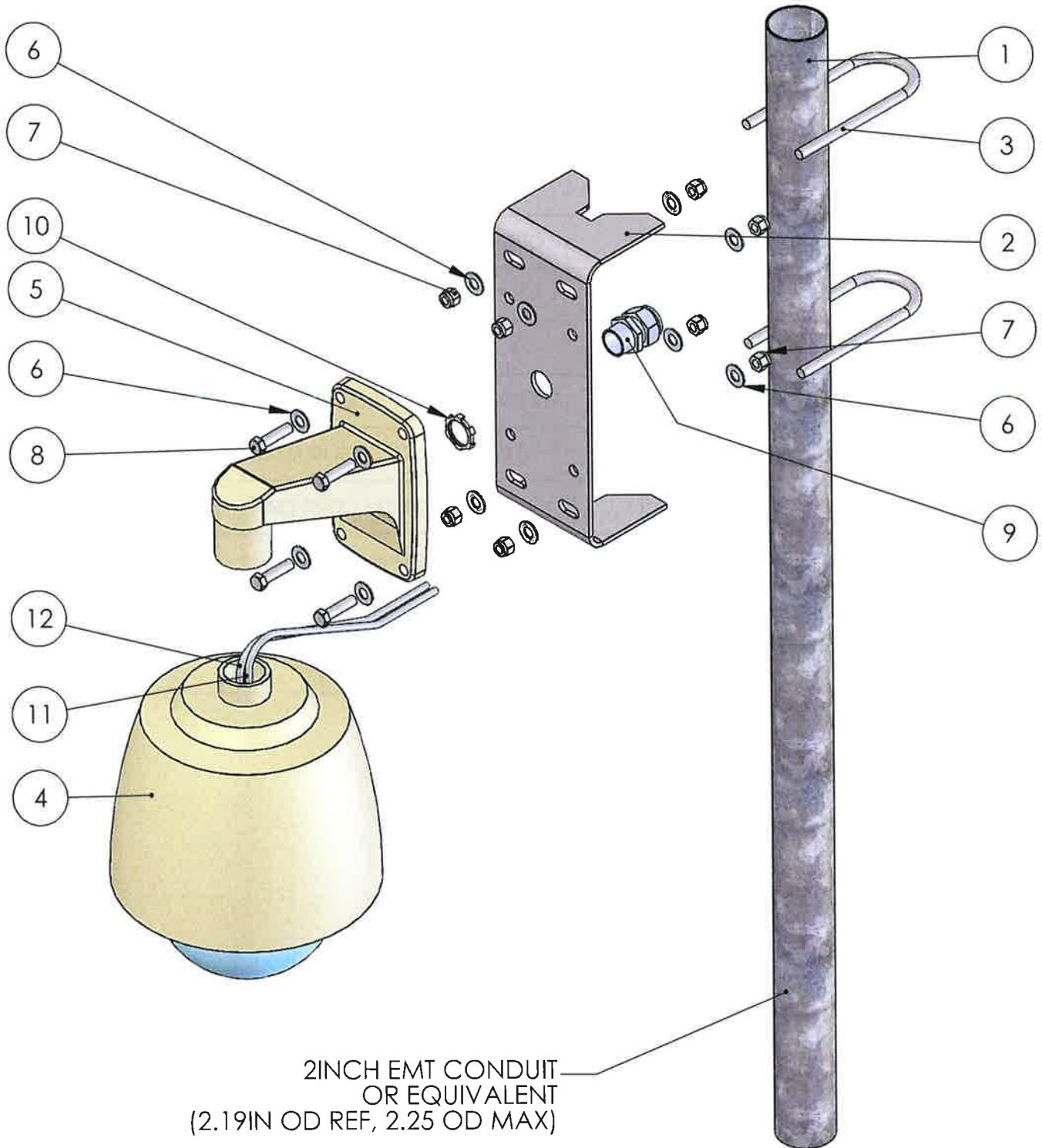


**POST MOUNTED OUTDOOR VIDEO CAMERA**

WEIGHT: 54.93 LB/ KG



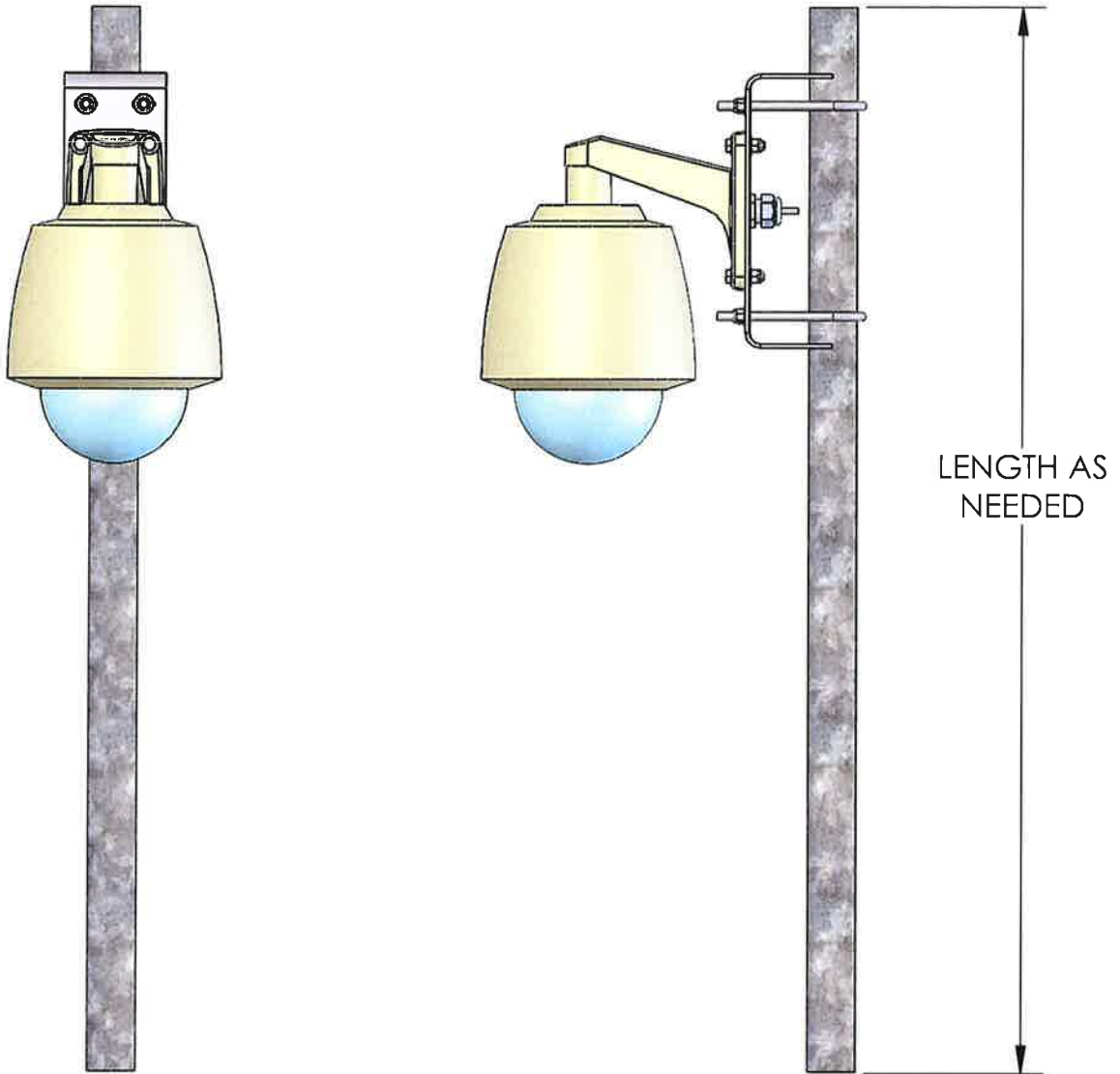




2 INCH EMT CONDUIT  
OR EQUIVALENT  
(2.19IN OD REF, 2.25 OD MAX)

**POST MOUNTED OUTDOOR VIDEO  
CAMERA**

WEIGHT: 54.93 LB/ KG



**POST MOUNTED OUTDOOR VIDEO  
CAMERA**

WEIGHT: 54.93 LB/ KG



# ATTACHMENT 3

LANL NPDES Permit No. NM0028355, Notice  
of Planned Change to Outfall 03A160

EPC-DO: 19-302

LA-UR-19-28341

Date:                     AUG 20 2019



**Environmental Protection & Compliance  
Division**

**Compliance Programs Group**

Los Alamos National Laboratory  
PO Box 1663, K490  
Los Alamos, NM 87545  
505-667-0666

Symbol: EPC-DO: 19-194  
LAUR: 19-25343  
Date: **JUN 12 2019**

Ms. Nancy Williams  
U.S. Environmental Protection Agency, Region 6  
Compliance Assurance and Enforcement Division  
Water Enforcement Branch (6EN)  
1445 Ross Avenue, Suite 1200  
Dallas, TX 75202-2733

**Subject: Los Alamos National Laboratory, National Pollutant Discharge Elimination System, Permit No. NM0028355, Notice of Planned Change to Outfall 03A160**

Dear Ms. Williams:

The National Pollutant Discharge Elimination System (NPDES) Permit No. NM0028355 for the Nuclear Security Administration (NNSA) and Triad National Security, LLC (Triad) requires the permittee(s) to notify the U. S. Environmental Protection Agency (EPA) of any physical alterations or additions to a permitted facility that could significantly change the nature or increase the quantity of pollutants discharged (see Part III.D.1.a. Report Requirements).

This notice of change is for the addition of a cooling tower water treatment system at the TA-35 National High Magnetic Field Laboratory (NHMFL) Cooling Towers that will start operations in July 2019. The new water treatment system will add corrosion inhibitor and biocide to the towers automatically using a programmable logic controller monitoring system. This will increase the efficiency of the cooling towers and provide cooling tower water treatment that is similar to the other cooling towers at the Laboratory. Attachment 1 provides a revised process schematic and water balance. Table 1 provides a revised list of wastewater treatment codes for the outfall.

<b>Source</b>	<b>Treatment Code</b>	<b>Description</b>	<b>Justification</b>
	2-E	Dechlorination	Chlorine Scavenger Chemicals are Added
	2-H	Disinfection (other)	Chemicals are added to Control Microorganisms

NHMFL Cooling Towers	2-L	Reduction	Chemicals that are Antiscalant and Corrosion Inhibitors are Added
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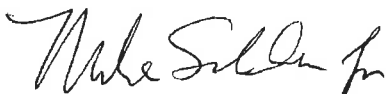
Table 2 provides a revised list of treatment chemicals for the cooling towers and Attachment 2 provides a copy of the associated Safety Data Sheets.

Table 2 List of New and/or Proposed Treatment Chemicals for Future Operations at Outfall 03A160			
Chemical Name	Reason for Use	Toxic Pollutant and/or Hazardous Substances Table 2C-3 or 2C-4	
GC Formula 2011 LT	Corrosion Inhibitor	phosphonobutane	NA
		tricarboxylic acid	NA
		monosodium phosphate	NA
		benzotriazole	NA
		phosphinocarboxylic acid	NA
GC Formula 314-T	Biocide	1-bromo-3-chloro-5,5-dimethyl hydantoin (chlorine source)	2C-4
GC Formula 315	Biocide	5-chloro-2-methyl-4-isothiazolin-3-one (chlorine source)	2C-4
		2-methyl-4-isothiazolin-3-one	NA
		magnesium nitrate	NA
		magnesium chloride	NA
WEST R-630	Dechlorination	Sodium Bisulfite	2C-4

This change does not immediately impact Outfall 03A160 because the tower routinely discharges to the TA-46 Sanitary Waste Water System. The modification does potentially change the effluent water quality if the towers discharge blowdown directly to Outfall 03A160. Therefore this notification is provided to the EPA as supplemental information to the 2019 NPDES Permit Application submitted to the EPA in March 2019.

Please contact Jennifer Griffin at (505) 667-6741 or Michael T. Saladen at (505) 665-6085 of the Environmental Compliance Programs Group (EPC-CP) if you have questions.

Sincerely,



Taunia S. Van Valkenburg  
 Group Leader

TVV/MTS/JKG:jdm



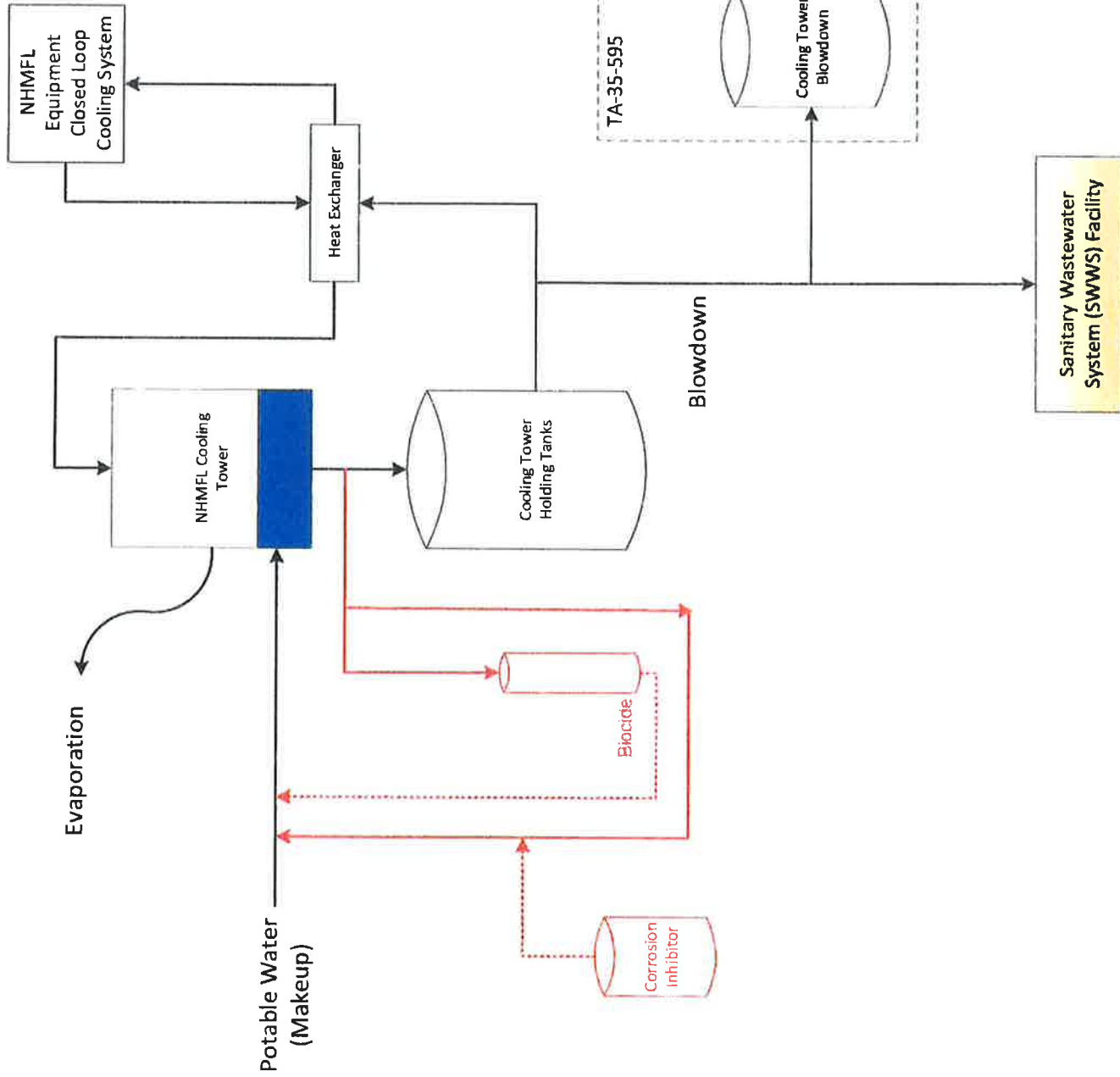
Attachment(s): Attachment 1 NPDES-FD-18-011-R1, Future Process Schematic TA-35 NHMFL  
Cooling Towers  
Attachment 2 Safety Data Sheets

Copy: Sarah Holcomb, NMED/SWQB, [sarah.Holcomb@state.nm.us](mailto:sarah.Holcomb@state.nm.us) (Hard copy, E-File)  
Shelly Lemon, NMED/SWQB, [Shelly.Lemon@state.nm.us](mailto:Shelly.Lemon@state.nm.us) (E-File)  
Erin Shea, NMED/SWQB, [erin.shea@state.nm.us](mailto:erin.shea@state.nm.us) (E-File)  
Michelle Hunter, NMED/GWQB, [michelle.hunter@state.nm.us](mailto:michelle.hunter@state.nm.us) (E-File)  
Karen E. Armijo, NA-LA, [Karen.armijo@nnsa.doe.gov](mailto:Karen.armijo@nnsa.doe.gov) (E-File)  
Michael W. Hazen, [mhazen@lanl.gov](mailto:mhazen@lanl.gov) (E-File)  
William R. Mairson, [wmarison@lanl.gov](mailto:wmarison@lanl.gov) (E-File)  
Enrique Torres, EPC-DO, [etorres@lanl.gov](mailto:etorres@lanl.gov) (E-File)  
Taunia S. Van Valkenburg, EPC-CP, [tauniav@lanl.gov](mailto:tauniav@lanl.gov) (E-File)  
Michael T. Saladen, EPC-CP, [saladen@lanl.gov](mailto:saladen@lanl.gov) (E-File)  
Jennifer Griffin, EPC-CP, [jkg@lanl.gov](mailto:jkg@lanl.gov), (E-File)  
Brian Watkins, WFO-DO, [bwatkins@lanl.gov](mailto:bwatkins@lanl.gov), (E-File)  
Robert Stokes, DESH-WFO, [rstokes@lanl.gov](mailto:rstokes@lanl.gov), (E-File)  
Darren Hanson, J-8, [dhanson@lanl.gov](mailto:dhanson@lanl.gov), (E-File)  
Kelkenny Bileen, DESH-WFO, [kbileen@lanl.gov](mailto:kbileen@lanl.gov), (E-File)  
Jesse R. Bailon, J-8, [jesseb@lanl.gov](mailto:jesseb@lanl.gov), (E-File)  
[epc-correspondence@lanl.gov](mailto:epc-correspondence@lanl.gov), (E-File)  
[adesh-records@lanl.gov](mailto:adesh-records@lanl.gov), (E-File)



**GENERAL NOTES & LEGEND**

- Schematic is NOT representative of the actual piping configuration.
- Flow rates were calculated from data collected between June 2017 and May 2018.
- Orange indicates process/equipment located at Sanitary Wastewater System Facility. **SWWS**
- Water Balance is based upon 1.8 cycles.



**NPDES-FD-18-011-R1**  
 FUTURE PROCESS SCHEMATIC  
 TA-35 NHMFL COOLING TOWERS  
 March 7, 2019  
 2019 NPDES Permit Re-Application  
**OUTFALL 03A160**



# FORMULA 2011





## MATERIAL SAFETY DATA SHEET

Prepared to U.S. OSHA, CMA, ANSI, Canadian WHMIS Standards, Australian WorkSafe, Japanese Industrial Standard JIS Z 7250:2000, and European Directives

### SECTION 1 - PRODUCT IDENTIFICATION

Product Name:	FORMULA 2011
Product Use:	COOLING WATER TREATMENT
UN NUMBER:	Not applicable
U.N. DANGEROUS GOOD CLASS/SUBSIDIARY RISK:	Not applicable
MANUFACTURER'S NAME:	Garratt-Callahan Company
ADDRESS:	50 Ingold Road, Burlingame, CA 94010-2206
EMERGENCY PHONE:	<b>North America: CHEMTREC: 1-800-424-9300</b> <b>Outside North America: +1-703-527-3887</b>
BUSINESS PHONE:	Product Information: 650-697-5811
MSDS Number:	SD2011
DATE OF REVISION:	2/22/2011

### SECTION 2 - HAZARDS IDENTIFICATION

EU LABELING AND CLASSIFICATION: Components of this product have not been classified as defined by the European Economic Community Guidelines (EECC). This product has not been classified by the EECC.

EU CLASSIFICATION: Not classified.

EU RISK PHRASES: Not classified.

EU SAFETY PHRASES: Not classified.

**DANGER! THIS PRODUCT IS A NON-FLAMMABLE, CLEAR LIGHT YELLOW LIQUID WITH SLIGHT ORGANIC ODOR. MAY CAUSE EYE AND SKIN IRRITATION. MAY CAUSE RESPIRATORY TRACT IRRITATION.**

HEALTH EFFECTS AND RISKS FROM EXPOSURE:

ACUTE: Contact with skin and eyes will cause burning and irritation. Do not wear contact lenses when using this product. Ingestion will cause gastric distress and possible depression of the central nervous system.

CHRONIC: Repeated or prolonged exposure to this product can produce target organ damage. Repeated exposure of the eyes can produce eye irritation. Repeated skin exposure can produce local skin destruction, or dermatitis. Repeated inhalation can produce varying degrees of respiratory irritation or lung damage.

TARGET ORGANS:

ACUTE: Skin, eyes, respiratory system.

CHRONIC: Skin, respiratory system

#### HAZARDOUS MATERIAL IDENTIFICATION SYSTEM

HEALTH HAZARD (BLUE)	1	Hazard Scale 0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe *=Chronic hazard
FLAMMABILITY HAZARD (RED)	0	
REACTIVITY HAZARD (YELLOW)	0	



WATER TREATMENT EXPERTISE SINCE 1904

FORMULA 2011

www.g-c.com

Page 1 of 5

**SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS**

<b>Hazardous Ingredients</b>	<b>CAS#</b>	<b>HAZARDOUS</b>	<b>EC#</b>	<b>ICSC#</b>	<b>WT %</b>	<b>Classification: Risk Phrases</b>
PHOSPHONOBUTANE TRICARBOXYLIC ACID	37971-36-1	YES	253-733-5	NE	< 5	Not classified
MONOSODIUM PHOSPHATE	7558-80-7	YES	231-449-2	NE	< 5	Not classified
BENZOTRIAZOLE	95-14-7	YES	202-394-1	1091	< 3	Not classified
PHOSPHINOCARBOXYLIC ACID	71050-62-9	YES	NE	NE	1	Not classified

NOTE: ALL WHMIS required information is included in appropriate sections based on the ANSI Z400.1-2004 format. This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR, EU Directives and the Japanese Industrial Standard JIS Z 7250: 2000. See Section 2 for full text of Risk Phrases and Safety Phrases.

**SECTION 4 - FIRST AID MEASURES**

Exposed individuals must be taken for medical attention if any adverse effect occurs. Take a copy of this MSDS to the health professional with the individual.

**SKIN EXPOSURE:** If this product contaminates the skin, begin decontamination with running water and soap. Minimum flushing time is for 15 minutes. Remove exposed or contaminated clothing, taking care not to contaminate the eyes. The exposed individual must seek medical attention if any adverse effect occurs.

**EYE EXPOSURE:** If vapors, mists, or sprays are generated by this product and enter the eyes, open the exposed individual's eyes while under gently running water. Use sufficient force to open the eyelids. Have the exposed individual "roll" their eyes. Minimum flushing time is for 15 minutes. The exposed individual must seek immediate medical attention.

**INHALATION:** If vapors, mists, or sprays generated by this product are inhaled, remove exposed individual to fresh air. Remove or cover gross contamination to avoid exposure to rescuers.

**INGESTION:** Routine use of this product is not expected to cause any situation which could lead to ingestion. If this product is swallowed, CALL PHYSICIAN OR POISON CONTROL CENTER FOR MOST CURRENT ASSISTANCE INFORMATION. Exposed individual must seek immediate medical attention. Never induce vomiting or give diluents (milk or water) by mouth to someone who is unconscious, having convulsions, or unable to swallow.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Skin and respiratory disorders, as well as conditions involving the "Target Organs" (see Section 2, Hazard Identification) which may be aggravated by prolonged exposures to this product. Exposed individual must seek immediate medical attention if any adverse effect occurs.

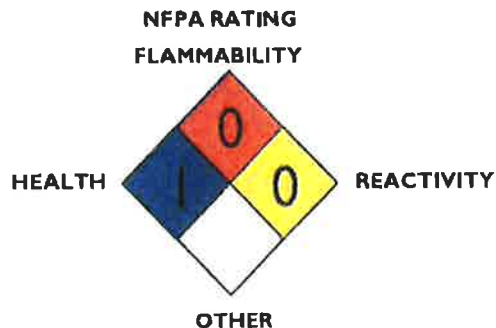
**NOTES TO PHYSICIAN:** Treat symptomatically. Treat symptoms as demonstrated by signs and distress in the patient.

**SECTION 5 - FIRE FIGHTING MEASURES**

**FIRE EXTINGUISHING MATERIALS:** Use media appropriate for the surrounding fire.

**UNUSUAL FIRE AND EXPLOSION HAZARDS:** No unusual hazards.

**SPECIAL FIRE-FIGHTING PROCEDURES:** In case of fire wear full positive-pressure self-contained breathing apparatus and protective suit.



WATER TREATMENT EXPERTISE SINCE 1904

## SECTION 6 - ACCIDENTAL RELEASE MEASURES

**WARNING:** Any container expansion or rounding indicates pressure build-up. Use extreme caution. When opening, release pressure slowly through opening.

**SPILL AND LEAK RESPONSE:** Uncontrolled releases should be responded to by appropriately trained personnel using pre-planned procedures. Proper protective equipment should be used.

**Small Spill:** Mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

**Large Spill:** Restrict access to the area. Provide adequate protective equipment and ventilation. Stop leak if without risk. Remove chemicals which can react with the spilled material. Add dry inert material to contain and absorb spilled material. Prevent entry into surface waters, sewers, basements or confined areas, dike if needed. Ensure that exposure to product is not at a concentration exceeding regulatory limits. Decontaminate the area thoroughly. Decontaminate all response equipment with soapy water before returning to service. Place all spill residue in a suitable container and seal. Dispose of in accordance with U.S. Federal, State, and local hazardous waste disposal regulations, those of Canada and its Provinces, those of Australia, Japan and EU Member States (see Section 13, Disposal Considerations), as appropriate.

## SECTION 7 - HANDLING AND STORAGE

**WORK PRACTICES AND HYGIENE PRACTICES:** As with all chemicals, avoid getting this product ON YOU or IN YOU. Wash thoroughly after handling this product. Do not eat, drink, smoke, or apply cosmetics while handling this product. Avoid breathing vapors or mists generated by this product. Use in a well-ventilated location. Remove contaminated clothing immediately.

**STORAGE AND HANDLING PRACTICES:** All employees who handle this material should be trained to handle it safely. Open containers slowly on a stable surface. Containers of this product must be properly labeled. Storage areas of this product should be clearly identified, well-illuminated, clear of obstruction and accessible only to trained and authorized personnel. Store containers in a cool, dry location, away from direct sunlight, at temperatures between 50°F - 100°F. Keep container tightly closed when not in use.

## SECTION 8 - EXPOSURE CONTROLS - PERSONAL PROTECTION

**VENTILATION AND ENGINEERING CONTROLS:** Use with adequate ventilation. Ensure eyewash/safety shower station is available near where this product is used.

### EXPOSURE LIMITS/GUIDELINES:

### EXPOSURE LIMITS IN AIR

CHEMICAL NAME	CAS#	ACGIH TLV		OSHA PEL	OTHER
		TWA	STEL	TWA	
PHOSPHONOBUTANE TRICARBOXYLIC ACID	37971-36-1	NE	NE	NE	NONE
MONOSODIUM PHOSPHATE	7558-80-7	NE	NE	NE	NONE
BENZOTRIAZOLE	95-14-7	NE	NE	NE	NONE
PHOSPHINOCARBOXYLIC ACID	71050-62-9	NE	NE	NE	NONE

NE = Not Established

The following information on appropriate Personal Protective Equipment is provided to assist employers in complying with OSHA regulations found in 29 CFR Subpart I (beginning at 1910.132 and 1910.138) or equivalent standard of Canada, European Standard DIN EN 374, Australian Standards, relevant Japanese Standards, or EU member states (including EN 149 for respiratory PPE, and EN 166 for face/eye protection). If necessary, refer to appropriate Standards of Canada, EU, Australia, or Japan.

**RESPIRATORY PROTECTION:** Maintain airborne contaminant concentrations below guidelines listed above, if applicable. If necessary, use only respiratory protection authorized in the U.S. Federal OSHA Respiratory Protection Standard (29 CFR 1910.134), equivalent U.S. State standards, Canadian CSA Standard Z94.4-93, the European Standard EN 149, or EU member states. Oxygen levels below 19.5% are considered IDLH by OSHA. In such atmospheres, use of a full-facepiece pressure/demand SCBA or a full facepiece, supplied air respirator with auxiliary self-contained air supply is required under U.S. Federal OSHA's Respiratory Protection Standard (1910.134-1998) or the regulations of various U.S. States, Canada, EU Member States, or those of Japan. Air-purifying respirators with dust/mist/fume filters are recommended if operations may produce mists or sprays from this product.

**EYE PROTECTION:** Chemical safety goggles. A face shield may also be necessary. If necessary, refer to U.S. OSHA 29 CFR 1910.133, Canadian Standards, and the European Standard EN 166, Australian Standards, or relevant Japanese Standards.

**SKIN PROTECTION:** Use chemically-resistant, such as Butyl rubber, Nitrile or polyvinyl alcohol gloves when handling this product. If necessary, refer to U.S. OSHA 29 CFR 1910.138, the European Standard DIN EN 374, the appropriate Standards of Canada, Australian Standards, or relevant Japanese Standards. Use body protection appropriate for task (e.g. lab coat, overalls).

WATER TREATMENT EXPERTISE SINCE 1904

**SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES**

APPEARANCE and COLOR:	Clear light yellow liquid	VAPOR PRESSURE, mm Hg @ 20°C :	Not determined
ODOR :	Slight Organic	VAPOR DENSITY (Air=10):	Not determined
pH:	2.0 - 4.0	SPECIFIC GRAVITY@20°C (water=1):	1.04 - 1.06
MELTING/FREEZING POINT:	NA	SOLUBILITY IN WATER:	Complete
BOILING POINT:	> 212 °F (100 °C)	PARTITION COEFFICIENT(n-octanol/water)	Not established
FLASHPOINT:	Non-flammable	AUTOIGNITION TEMPERATURE:	Not established
EVAPORATION RATE (n-BuAc=1):	Not established	DECOMPOSITION TEMPERATURE:	Not established
FLAMMABLE LIMITS (in air by volume, %):	Not established	VISCOSITY:	Not established

**SECTION 10 - STABILITY AND REACTIVITY**

REACTIVITY: Not established

STABILITY: Stable

HAZARDOUS DECOMPOSITION: When heated to decomposition, product may emit toxic fumes of oxides of carbon, nitrogen, phosphorous and sulfur.

HAZARDOUS POLYMERIZATION: Will not occur.

INCOMPATIBLE MATERIALS: Bases

CONDITIONS TO AVOID: None known

**SECTION 11 - TOXICOLOGICAL INFORMATION**

SUSPECTED CANCER AGENT: The components of this product are not found on the following lists: FEDERAL OSHA Z LIST, NTP, IARC, or CAL/OSHA and therefore are not considered to be, nor suspected to be, cancer-causing agents by these agencies.

BIOLOGICAL EXPOSURE INDICES: Currently, Biological Exposure Indices (BEIs) have not been determined for the components of this product.

**SECTION 12 - ECOLOGICAL INFORMATION**

ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.

ENVIRONMENTAL STABILITY: The components of this product will slowly degrade under ambient environmental conditions to other organic compounds. The following information is available for the main components of this product.

ECOLOGICAL DATA:

Fish: Flathead Minnow, LC50, 5359 ppm

Algae: No data available

Water Flea, LC50, Daphnia magna, 7071 ppm

BOD5 and COD: Material not expected to bioaccumulate.

**SECTION 13 - DISPOSAL CONSIDERATIONS**

DISPOSAL: Waste disposal must be in accordance with appropriate U.S. Federal, State, and local regulations, those of Canada, Australia, EU Member States and/or Japan, as appropriate.

**SECTION 14 - TRANSPORTATION INFORMATION**

US DOT - NOT REGULATED

ICAO/IATA - NOT REGULATED

IMO/IMDG - NOT REGULATED

**SECTION 15 - REGULATORY INFORMATION****United States and International Regulations**

**United States Regulations: U.S. SARA REPORTING REQUIREMENTS:** The components of this product are subject to the reporting requirements of Sections 302, 304, and 313 of Title of the Superfund Amendments and Reauthorization Act, listed below:

**CHEMICAL NAME**

PHOSPHONOBUTANE	SARA 302 (40 CFR 355, Appendix A) - NO
TRICARBOXYLIC ACID	SARA 304 (40 CFR Table 302.4) - NO SARA 313 (40 CFR 372.65) - NO
MONOSODIUM PHOSPHATE	SARA 302 (40 CFR 355, Appendix A) - NO SARA 304 (40 CFR Table 302.4) - NO SARA 313 (40 CFR 372.65) - NO
BENZOTRIAZOLE	SARA 302 (40 CFR 355, Appendix A) - NO SARA 304 (40 CFR Table 302.4) - NO SARA 313 (40 CFR 372.65) - NO
PHOSPHINOCARBOXYLIC ACID	SARA 302 (40 CFR 355, Appendix A) - NO SARA 304 (40 CFR Table 302.4) - NO SARA 313 (40 CFR 372.65) - NO

**U.S. Regulations**

**U.S. SARA THRESHOLD PLANNING QUANTITY:** There are no specific Threshold Planning Quantities for the components of this product. The default Federal MSDS submission and inventory requirement filing threshold of 10,000 lbs (4,540 kg) therefore applies, per 40 CFR 370.20.U.S.

**CERCLA REPORTABLE QUANTITY (RQ):** None

**U.S. TSCA INVENTORY STATUS:** The components of this product are listed on the TSCA Inventory.

**OTHER U.S. FEDERAL REGULATIONS:**

SARA Title 311/312, Hazard Category: Acute Health: NO; Chronic: YES; Fire: NO; Reactive: NO; Sudden Release of Pressure: NO

**CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65):** No component of this product is on the Proposition 65 List.

**International Regulations**

**CANADIAN REGULATIONS:**

**CANADIAN DSL/NDSL INVENTORY STATUS:** The components of this product are on the DSL or NDSL Inventories

**CANADIAN WHMIS CLASSIFICATION:** Not classified.

This material or its components are listed (or considered as having been notified) on the European Inventory of Existing Chemical Substances (EINECS).

Other Inventory Lists: Korea (TCCL), Australia (AISC), China (Draft), PICCS (Philippines-RA6969), Japan (ENCS METI/MOL).

**SECTION 16 - OTHER INFORMATION**

**PREPARED BY:** Garratt Callahan

**Revision Date:** February 22, 2011

**Supersedes:** June 6, 2008

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user's intended purpose or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose.



# GC FORMULA 314-T



## MATERIAL SAFETY DATA SHEET

### SECTION 1 - PRODUCT IDENTIFICATION

PRODUCT NAME:	FORMULA 314-T
PRODUCT USE:	BIOCIDE
UN NUMBER:	1479
PROPER SHIPPING NAME:	OXIDIZING SOLID, N.O.S., 5.1, PGII, (1-BROMO-3-CHLORO-5,5-DIMETHYLHYDANTOIN)
MANUFACTURER'S NAME:	Garratt-Callahan Company
ADDRESS:	50 Ingold Road, Burlingame, CA 94010-2206
EMERGENCY PHONE:	<b>North America: CHEMTREC: 1-800-424-9300</b> <b>Outside North America: +1-703-527-3887</b>
BUSINESS PHONE:	Product Information: 650-697-5811
MSDS NUMBER:	SD3314
DATE OF REVISION:	3/6/2012

### SECTION 2 - HAZARDS IDENTIFICATION

OXIDIZING SOLID, N.O.S. (1-BROMO-3-CHLORO-5,5-DIMETHYLHYDANTOIN), 5.1, PGII

EU LABELING AND CLASSIFICATION: This product meets the definition of the following hazard class as defined by the European Economic Community Guidelines.

EU CLASSIFICATION: [Xn] Harmful; [C] Corrosive

EU RISK PHRASES: R8: Contact with combustible material may cause fire; R31: Contact with acids liberates toxic gas; R34: Causes burns.

EU SAFETY PHRASES: S8: Keep container dry; S17: Keep away from combustible materials; S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice; S36: Wear suitable protective clothing; S37: Wear suitable gloves; S39: Wear eye/face protection; S41: In case of fire and/or explosion do not breath fumes; S45: In case of accident or if you feel unwell, seek medical advice immediately.

**DANGER! THIS PRODUCT IS A NON-FLAMMABLE, WHITE TO OFF-WHITE TABLET WITH A FAINT HALOGEN ODOR. MAY CAUSE EYE AND SKIN BURNS. HARMFUL IF INGESTED OR SWALLOWED. MAY CAUSE RESPIRATORY TRACT IRRITATION.**

#### HEALTH EFFECTS AND RISKS FROM EXPOSURE:

ACUTE: Contact with skin and eyes will cause burning and irritation. Do not wear contact lenses when using this product. Ingestion will cause gastric distress and possible depression of the central nervous system.

CHRONIC: Repeated or prolonged exposure to this product can produce target organ damage. Repeated exposure of the eyes can produce eye irritation. Repeated skin exposure can produce local skin destruction, or dermatitis. Repeated inhalation can produce varying degrees of respiratory irritation or lung damage.

#### TARGET ORGANS:

ACUTE: Skin, eyes respiratory system.

CHRONIC: Skin, respiratory system

#### HAZARDOUS MATERIAL IDENTIFICATION SYSTEM

HEALTH HAZARD (BLUE)	3
FLAMMABILITY HAZARD (RED)	0
REACTIVITY HAZARD (YELLOW)	1

Hazard Scale  
 0=Minimal  
 1=Slight  
 2=Moderate  
 3=Serious  
 4=Severe  
 \*=Chronic hazard



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**SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS**

<b>Hazardous Ingredients</b>	<b>CAS#</b>	<b>EC#</b>	<b>ICSC#</b>	<b>WT %</b>	<b>GHS Hazard Statements</b>
I-BROMO-3-CHLORO-5,5-DIMETHYL-HYDANTOIN	16079-88-2	240-230-0	NE	96%	HAZARD CLASSIFICATION: [Xn] HARMFUL, [C] CORROSIVE RISK PHRASES: R8, R31, R34

**SECTION 4 - FIRST AID MEASURES**

Exposed individuals must be taken for medical attention if any adverse effect occurs. Take a copy of this MSDS to the health professional with the individual.

**SKIN EXPOSURE:** If this product contaminates the skin, begin decontamination with running water and soap. Minimum flushing time is for 15 minutes. Remove exposed or contaminated clothing, taking care not to contaminate the eyes. The exposed individual must seek medical attention if any adverse effect occurs.

**EYE EXPOSURE:** If vapors, mists, or sprays are generated by this product and enter the eyes, open the exposed individual's eyes while under gently running water. Use sufficient force to open the eyelids. Have the exposed individual "roll" their eyes. Minimum flushing time is for 15 minutes. The exposed individual must seek immediate medical attention.

**INHALATION:** If vapors, mists, or sprays generated by this product are inhaled, remove exposed individual to fresh air. Remove or cover gross contamination to avoid exposure to rescuers.

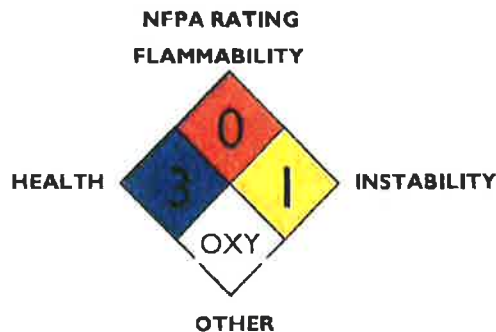
**INGESTION:** Routine use of this product is not expected to cause any situation which could lead to ingestion. If this product is swallowed, CALL PHYSICIAN OR POISON CONTROL CENTER FOR MOST CURRENT ASSISTANCE INFORMATION. Exposed individual must seek immediate medical attention. Never induce vomiting or give diluents (milk or water) by mouth to someone who is unconscious, having convulsions, or unable to swallow.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Skin and respiratory disorders, as well as conditions involving the "Target Organs" (see Section 2, Hazards Identification) which may be aggravated by prolonged exposures to this product. Exposed individual must seek immediate medical attention if any adverse effect occurs.

**NOTES TO PHYSICIAN:** Treat symptomatically. Treat symptoms as demonstrated by signs and distress in the patient.

**SECTION 5 - FIRE FIGHTING MEASURES**

<b>FIRE EXTINGUISHING MATERIALS:</b>	Water spray, fog or mist. Alcohol resistant foam. Do not use ammonium-phosphate (ABC), other dry chemical extinguishers or CO <sub>2</sub> .
<b>UNUSUAL FIRE AND EXPLOSION HAZARDS:</b>	Oxidizing material. Forms explosive mixtures with combustible organic or other easily oxidizable materials. May release hydrogen bromide or bromine gas, nitrogen oxides, hydrogen chloride when wet. Fire causes formation of toxic gases.
<b>SPECIAL FIRE-FIGHTING PROCEDURES:</b>	Wear self-contained breathing apparatus and full protective gear. Keep run-off water out of sewers and water sources. Dike for water control.



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**SECTION 6 - ACCIDENTAL RELEASE MEASURES**

**WARNING:** Any drum expansion or rounding indicates pressure build-up. Use extreme caution. When opening, release pressure slowly through lifting edge of lid carefully.

**SPILL AND LEAK RESPONSE:** Uncontrolled releases should be responded to by appropriately trained personnel using pre-planned procedures. Proper protective equipment should be used.

**Small Spill:** Collect and place in an appropriate waste disposal container.

**Large Spill:** Non-flammable corrosive oxidizing solid. Restrict access to the area. Avoid contact with water. Provide adequate protective equipment and ventilation. Stop leak if without risk. Remove chemicals which can react with the spilled material. Use DRY earth sand or other non-combustible material to collect and dry product. Do not get water inside container. Do not touch spilled material. Use water spray curtain to divert vapor drift. Prevent entry into surface waters, sewers, basements or confined areas, dike if needed. Decontaminate the area thoroughly. Decontaminate all response equipment with soapy water before returning to service. Place all spill residue in a suitable container and seal. Dispose of in accordance with U.S. Federal, State, and local hazardous waste disposal regulations, those of Canada and its Provinces, those of Australia, Japan and EU Member States (see Section 13, Disposal Considerations), as appropriate.

**SECTION 7 - HANDLING AND STORAGE**

**WORK PRACTICES AND HYGIENE PRACTICES:** As with all chemicals, avoid getting this product ON YOU or IN YOU. Wash thoroughly after handling this product. Do not eat, drink, smoke, or apply cosmetics while handling this product. Avoid breathing vapors or mists generated by this product. Use in a well-ventilated location. Remove contaminated clothing immediately.

**STORAGE AND HANDLING PRACTICES:** All employees who handle this material should be trained to handle it safely. Open containers slowly on a stable surface. Containers of this product must be properly labeled. Storage areas of this product should be clearly identified, well-illuminated, clear of obstruction and accessible only to trained and authorized personnel. Store containers in a cool, dry location, away from direct sunlight, heat, sparks or open flame. Keep container tightly closed when not in use. Storage class: oxidizer storage.

**SECTION 8 - EXPOSURE CONTROLS - PERSONAL PROTECTION**

**VENTILATION AND ENGINEERING CONTROLS:** Use with adequate ventilation. Eyewash/safety shower station is recommended to be available near where this product is used.

**EXPOSURE LIMITS/GUIDELINES:**

CHEMICAL NAME	CAS#	EXPOSURE LIMITS IN AIR			
		ACGIH TLV TWA	STEL	OSHA PEL TWA	OTHER
I-BROMO-3-CHLORO-5,5-DIMETHYL-HYDANTOIN	16079-88-2	NE	NE	NE	NONE

NE = Not Established

**RESPIRATORY PROTECTION:** Maintain airborne contaminant concentrations below guidelines listed above, if applicable. Air-purifying respirators with dust/mist/fume filters are recommended if operations may produce mists or sprays from this product.

**EYE PROTECTION:** Chemical safety goggles. A face shield may also be necessary.

**SKIN PROTECTION:** Use chemically-resistant gloves (rubber, neoprene or pvc) when handling this product. Wear apron or protective clothing in case of contact.

**SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES**

APPEARANCE and COLOR:	White to off-white tablet	VAPOR PRESSURE, mm Hg @ 20°C :	NA
ODOR :	Slight odor Halogen	VAPOR DENSITY (Air=1):	NA
pH:	3.5 @ 0.15%	SPECIFIC GRAVITY@20°C (water=1):	NA
MELTING/FREEZING POINT:	145-160°C	SOLUBILITY IN WATER:	Slightly
BOILING POINT:	NA	PARTITION COEFFICIENT(n-octanol/water)	Not established
FLASHPOINT:	Non-flammable	AUTOIGNITION TEMPERATURE:	NA
EVAPORATION RATE (n-BuAc=1):	NA	DECOMPOSITION TEMPERATURE:	Not established
FLAMMABLE LIMITS (in air by volume, %):	NA	VISCOSITY:	NA
		VOLATILE ORGANIC COMPOUNDS (%)	None

WATER TREATMENT EXPERTISE SINCE 1904

**SECTION 10 - STABILITY AND REACTIVITY**

REACTIVITY: Not established

STABILITY: Stable under normal temperature condition. Avoid moisture.

HAZARDOUS DECOMPOSITION: Toxic gases/vapors/fumes of: Hydrogen Bromide, Bromine, Hydrogen chloride, chlorine, oxides of carbon, Nitrogen.

HAZARDOUS POLYMERIZATION: Will not occur.

INCOMPATIBLE MATERIALS: Hydrocarbons, strong acids, strong alkalis, strong oxides, strong reducing agents.

CONDITIONS TO AVOID: Avoid contact with oxidizers or reducing agents. Avoid contact with acids and alkalis. Avoid heat, flames and other sources of ignition. Avoid moisture.

**SECTION 11 - TOXICOLOGICAL INFORMATION**

1-BROMO-3-CHLORO-5,5-DIMETHYL-HYDANTOIN:

Oral: LD50: rats, 578 mg/kg

Dermal: LD50: rabbits, 2000mg/kg

Toxicological Information: Ames test negative

Inhalation: May cause irritation to the respiratory system.

Carcinogenicity: None of the components of this product are listed by the NTP, IARC, or regulated by OSHA as carcinogens.

BIOLOGICAL EXPOSURE INDICES: Currently, Biological Exposure Indices (BEIs) have not been determined for the components of this product.

**SECTION 12 - ECOLOGICAL INFORMATION**

Environmental Fate:

ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.

ENVIRONMENTAL STABILITY: Not determined

COD: 1.005 g/g. Material is expected to present a low bioaccumulation potential.

Environmental Toxicity:

ECOLOGICAL DATA:

Fish: LC50: 96 hr = .87 mg/l

Algae: No Data

Daphnia: LC50: 48 hr = .48 mg/l

Acute Toxicity : LC50: 96hours, 640 mg/l American Oyster.

**SECTION 13 - DISPOSAL CONSIDERATIONS**

DISPOSAL: Waste disposal must be in accordance with appropriate U.S. Federal, State, and local regulations, those of Canada, Australia, EU Member States and/or Japan, as appropriate. Absorb in vermiculite or dry sand.

**SECTION 14 - TRANSPORTATION INFORMATION**

DOT

Proper Shipping Name: OXIDIZING SOLID, N.O.S., 5.1, PGII, (1-BROMO-3-CHLORO-5,5-DIMETHYLHYDANTOIN)

Hazard Class: 5.1

UN No. : 1479

Packing Group: II

Transport Description: UN1479, OXIDIZING SOLID, N.O.S., 5.1, PGII, (1-BROMO-3-CHLORO-5,5-DIMETHYLHYDANTOIN)  
ERG 140



IMDG/IMO

Class: 5.1

Packing Group: II

UN No. : 1479

IMO Labeling and Marking: 5.1

Proper Shipping Name: UN1479, OXIDIZING SOLID, N.O.S., 5.1, PGII, (1-BROMO-3-CHLORO-5,5-DIMETHYLHYDANTOIN)

IATA/ICAO

Class: 5.1

Packing Group: II

UN No.: 1479

IATA/ICAO Labeling: 5.1

Proper Shipping Name: UN1479, OXIDIZING SOLID, N.O.S., 5.1, PGII, (1-BROMO-3-CHLORO-5,5-DIMETHYLHYDANTOIN)

PRODUCT REQUIRES OXIDIZER LABEL

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**SECTION 15 - REGULATORY INFORMATION****United States and International Regulations**

**United States Regulations: U.S. SARA REPORTING REQUIREMENTS:** The components of this product are subject to the reporting as listed below, requirements of Sections 302, 304, and 313 of Title of the Superfund Amendments and Reauthorization Act:

**CHEMICAL NAME**

I-BROMO-3-CHLORO-5,5-DIMETHYL- HYDANTOIN	SARA 302 (40CFR 355, APPENDIX A) - NO SARA 304 (40CFR TABLE 302.4) - NO SARA 313 (40CFR 372.65) - NO
---	--

**U.S. Regulations**

**U.S. SARA THRESHOLD PLANNING QUANTITY:** There are no specific Threshold Planning Quantities for the components of this product. The default Federal MSDS submission and inventory requirement filing threshold of 10,000 lbs (4,540 kg) therefore applies, per 40 CFR 370.20.

**U.S. CERCLA REPORTABLE QUANTITY (RQ):** Not listed

**U.S. TSCA INVENTORY STATUS:** The components of this product are listed on the TSCA Inventory.

**OTHER U.S. FEDERAL REGULATIONS:**

SARA TITLE 311/312 HAZARD CATEGORY: ACUTE: YES CHRONIC: NO FIRE: YES REACTIVITY: NO

**STATE REGULATIONS**

**CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65):** No component of this product is on the Proposition 65 List.

**International Regulations****CANADIAN REGULATIONS:**

**CANADIAN DSL/NDSL INVENTORY STATUS:** The components of this product are on the DSL or NDSL Inventories

**CANADIAN WHMIS CLASSIFICATION:** CLASS D; Div2 Material causing other Toxic effects (Very Toxic)

**CLASS E:** Corrosive Material

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations.

This material or all of its components are listed on the Canadian Domestic Substances List (DSL).

This material or all of its components are listed (or considered as having been notified) on the European Inventory of Existing Chemical Substances.

Other Inventory Lists: Korea (TCCL), Australia (AISC), China (Draft), PICCS (Philippines-RA6969), Japan (ENCS METI/MOL).

**SECTION 16 - OTHER INFORMATION**

Formula 314-T is registered with the NSF to the NSF International Registration Guidelines for Proprietary Substances and Nonfood Compounds for category codes G5, G7, etc.; with NSF Reg. No. 113139.

PREPARED BY: Garratt Callahan

REVISION DATE: March 06, 2012 SUPERCEDES: September 14, 2010

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user's intended purpose or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose.

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# GC FORMULA 315



## MATERIAL SAFETY DATA SHEET

### SECTION 1 - PRODUCT IDENTIFICATION

PRODUCT NAME:	FORMULA 315
PRODUCT USE:	BIOCIDE
RESTRICTIONS ON USE:	Refer to label, available technical information, and other appropriate sections of this SDS.
UN NUMBER:	3265
PROPER SHIPPING NAME:	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE), 8, PG II
MANUFACTURER'S NAME:	Garratt-Callahan Company
ADDRESS:	50 Ingold Road, Burlingame, CA 94010-2206
EMERGENCY PHONE:	<b>North America: CHEMTREC: 1-800-424-9300</b> <b>Outside North America: +1-703-527-3887</b>
BUSINESS PHONE:	Product Information: 650-697-5811
MSDS NUMBER:	SD3315
DATE OF REVISION:	5/21/2013

### SECTION 2 - HAZARDS IDENTIFICATION

GHS LABELING AND CLASSIFICATION:

SIGNAL WORD: WARNING

GHS HAZARD STATEMENT:

H302: Harmful if swallowed.  
H315: Causes skin irritation.  
H320: Causes eye irritation.  
H335: May cause respiratory irritation.



GHS PREVENTATIVE STATEMENTS:

P101: If medical advice is needed, have product container or label at hand.  
P102: Keep out of reach of children.  
P103: Read label before use.  
P261: Avoid breathing dust/fume/gas/mist/vapours/spray.  
P264: Wash all exposed skin/hair thoroughly after handling.  
P270: Do not eat, drink or smoke when using this product.  
P271: Use only outdoors or in a well-ventilated area.  
P280: Wear protective gloves/protective clothing/eye protection/face protection.

**DANGER! THIS PRODUCT IS A NON-FLAMMABLE, CLEAR YELLOW GREEN LIQUID WITH A PUNGENT ODOR. MAY CAUSE EYE AND SKIN BURNS. HARMFUL IF SWALLOWED. MAY CAUSE RESPIRATORY TRACT IRRITATION. ENVIRONMENTAL HAZARDS: Release of this product to the environment is expected to cause harm to plants and animals. If accidentally released, precautions must be taken to protect the environment.**

**SYMPTOMS OF OVEREXPOSURE BY ROUTE OF EXPOSURE:** The most significant routes of overexposure for this product are by inhalation of mists or contact with skin or eyes. The symptoms of overexposure are described in the following paragraphs.

**HEALTH EFFECTS AND RISKS FROM EXPOSURE:**

**ACUTE:** Contact with skin and eyes will cause burning and irritation. Do not wear contact lenses when using this product. Ingestion will cause gastric distress and possible depression of the central nervous system.  
**CHRONIC:** Repeated or prolonged exposure to this product can produce target organ damage. Repeated exposure of the eyes can produce eye irritation. Repeated skin exposure can produce local skin destruction, or dermatitis. Repeated inhalation can produce varying degrees of respiratory irritation or lung damage.  
**TARGET ORGANS:**  
**ACUTE:** Skin, eyes, respiratory, gastrointestinal systems.  
**CHRONIC:** Skin, eyes, respiratory, gastrointestinal systems.

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FORMULA 315

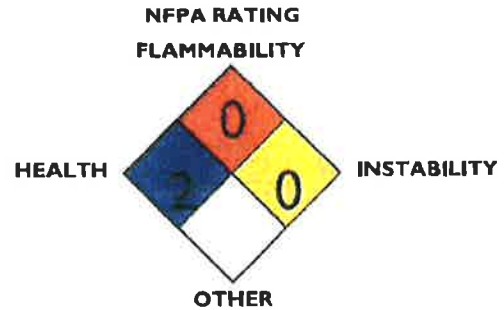
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**HAZARDOUS MATERIAL IDENTIFICATION SYSTEM**

<b>HEALTH HAZARD (BLUE)</b>	<b>2</b>
<b>FLAMMABILITY HAZARD (RED)</b>	<b>0</b>
<b>REACTIVITY HAZARD (YELLOW)</b>	<b>0</b>

Hazard Scale  
 0=Minimal  
 1=Slight  
 2=Moderate  
 3=Serious  
 4=Severe  
 \*=Chronic hazard

**SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS**

<u>Hazardous Ingredients</u>	<u>CAS#</u>	<u>EC#</u>	<u>ICSC#</u>	<u>WT %</u>
MAGNESIUM NITRATE	10377-60-3	233-826-7	1041	1-3
5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE	26172-55-4	247-500-7	NA	1-2
2-METHYL-4-ISOTHIAZOLIN-3-ONE	2682-20-4	220-239-6	NA	<1
MAGNESIUM CHLORIDE	7786-30-3	232-094-6	0764	<1

**SECTION 4 - FIRST AID MEASURES**

**P312:** Call a POISON CENTER or doctor/physician if you feel unwell. Contaminated individuals of chemical exposure must be taken for medical attention if any adverse effect occurs. Rescuers should be taken for medical attention, if necessary. Take copy of label and MSDS to health professional with contaminated individual.

**SKIN EXPOSURE: P302+P352: IF ON SKIN:** Wash with soap and water. Minimum flushing is for 15 minutes. Remove exposed or contaminated clothing, taking care not to contaminate eyes. The contaminated individual must seek medical attention if any adverse effect occurs. **P362:** Take off contaminated clothing and wash before reuse.

**EYE EXPOSURE: P305+P351+P338: IF IN EYES:** Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing. If vapors, mists, or sprays generated by this product enter the eyes, open contaminated individual's eyes while under gently running water. Use sufficient force to open eyelids. Have contaminated individual "roll" eyes. Minimum flushing is for 15 minutes. Contaminated individual must seek immediate medical attention. **P337+P313:** If eye irritation persists get medical advice/attention.

**INHALATION:** If vapors, mists, or sprays generated by this product are inhaled, remove contaminated individual to fresh air. If necessary, use artificial respiration to support vital functions. Remove or cover gross contamination to avoid exposure to rescuers. **P304+P340: IF INHALED:** Remove victim to fresh air and keep at rest in a position comfortable for breathing.

**INGESTION: P301+P312: IF SWALLOWED:** Call a POISON CENTER or doctor/physician if you feel unwell. **P330:** Rinse mouth. Routine use of this product is not expected to cause any situation which could lead to ingestion.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Skin and respiratory disorders, as well as conditions involving the "Target Organs" (see Section 3, Hazard Identification) may be aggravated by prolonged overexposures to this product.

**NOTES TO PHYSICIAN:** Treat symptoms as demonstrated by signs and distress in the patient.

**SECTION 5 - FIRE FIGHTING MEASURES****SUITABLE (AND UNSUITABLE) EXTINGUISHING MATERIALS:**

Use media appropriate for the surrounding fire.

**SPECIFIC HAZARDS ARISING FROM THE CHEMICAL:**

Non-Flammable Liquid.

Explosion hazards in Presence of Various Substances: Non-Explosive In presence of open flames and sparks, or shocks.

Special Remarks on Explosion Hazards: None known

**SPECIAL PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIREFIGHTERS:**

Incipient fire responders should wear eye protection. Structural firefighters must wear Self-Contained Breathing Apparatus and full protective equipment. Isolate materials not yet involved in the fire and protect personnel. Move containers from fire area if this can be done without risk; otherwise, cool with carefully applied water spray. If possible, prevent runoff water from entering storm drains, bodies of water, or other environmentally sensitive areas.

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## SECTION 6 - ACCIDENTAL RELEASE MEASURES

**SPILL AND LEAK RESPONSE:** Uncontrolled releases should be responded to by appropriately trained personnel using pre-planned procedures. Proper protective equipment should be used.

**Small Spill:** Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

**Large Spill:** Corrosive liquid.

Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray curtain to divert vapor drift. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas, dike if needed. Ensure that the product is not at a concentration level above regulated concentration. Decontaminate the area thoroughly. Decontaminate all response equipment with soapy water before returning to service. Place all spill residue in a suitable container and seal.

## SECTION 7 - HANDLING AND STORAGE

**WORK PRACTICES AND HYGIENE PRACTICES:** As with all chemicals, avoid getting this product ON YOU or IN YOU. Wash thoroughly after handling this product. Do not eat, drink, smoke, or apply cosmetics while handling this product. Avoid breathing vapors or mists generated by this product. Use in a well-ventilated location. Remove contaminated clothing immediately.

**STORAGE AND HANDLING PRACTICES:** All employees who handle this material should be trained to handle it safely. Open containers slowly on a stable surface. Containers of this product must be properly labeled. Storage areas of this product should be clearly identified, well-illuminated, clear of obstruction and accessible only to trained and authorized personnel. Store containers in a cool, dry location, away from direct sunlight, at temperatures between 50°F - 104°F. Keep container tightly closed when not in use. P405: Store locked up. P403+P233: Store in a well ventilated place. Keep container tightly closed.

## SECTION 8 - EXPOSURE CONTROLS - PERSONAL PROTECTION

**VENTILATION AND ENGINEERING CONTROLS:** Use with adequate ventilation. Eyewash/safety shower station is recommended to be available near where this product is used/stored.

### EXPOSURE LIMITS/GUIDELINES:

### EXPOSURE LIMITS IN AIR

CHEMICAL NAME	CAS#	ACGIH TLV		OSHA PEL	OTHER
		TWA	STEL	TWA	
MAGNESIUM NITRATE	10377-60-3	NE	NE	NE	NE
5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE	26172-55-4	NE	NE	NE	NE
2-METHYL-4-ISOTHIAZOLIN-3-ONE	2682-20-4	NE	NE	NE	NE
MAGNESIUM CHLORIDE	7786-30-3	NE	NE	NE	NE

NE = Not Established

**INGESTION:** P270: Do not eat, drink or smoke when using this product.

**RESPIRATORY PROTECTION:** P261: Avoid breathing dust/fume/gas/mist/vapours/spray. P271: Use only outdoors or in a well-ventilated area. Maintain airborne contaminant concentrations below guidelines listed above, if applicable. Air-purifying respirators with dust/mist/fume filters are recommended if operations may produce mists or sprays from this product.

**EYE PROTECTION:** Safety glasses or safety goggles. If splashing is anticipated, a face shield is recommended. P280: Wear protective gloves/protective clothing/eye protection/face protection.

**SKIN PROTECTION:** **HAND PROTECTION:** P264: Wash all exposed skin/hair thoroughly after handling. P280: Wear protective gloves/protective clothing/eye protection/face protection. Use chemically-resistant gloves when handling this product.

**BODY PROTECTION:** Use body protection appropriate for task (e.g., lab coat, overalls, gloves).

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**SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES**

APPEARANCE and COLOR:	Clear yellow/green liquid	VAPOR PRESSURE, mm Hg @ 20°C :	Not established
ODOR :	Pungent	VAPOR DENSITY (Air=1):	Not established
ODOR THRESHOLD:	Not established	RELATIVE DENSITY@20°C (water=1):	1.0 - 1.10
pH:	3.0 - 6.5	SOLUBILITY IN WATER:	Complete
MELTING/FREEZING POINT:	NA	PARTITION COEFFICIENT(n-octanol/water)	Not established
BOILING POINT:	100°C (212°F)	AUTOIGNITION TEMPERATURE:	NA
FLASHPOINT:	Non-flammable	DECOMPOSITION TEMPERATURE:	Not established
EVAPORATION RATE (n-BuAc=1):	< 1	VISCOSITY:	Not established
FLAMMABILITY (SOLID/GAS):	NA	VOLATILE ORGANIC COMPOUNDS (%):	Not established
FLAMMABLE LIMITS (in air by volume, %):	NA		

**SECTION 10 - STABILITY AND REACTIVITY****REACTIVITY:** Not established**STABILITY:** Stable**POSSIBILITY OF****HAZARDOUS REACTIONS:** Will not occur.**CONDITIONS TO AVOID:** None known.**INCOMPATIBLE MATERIALS:** Oxidizing agents, reducing agents, amines, mercaptans.**HAZARDOUS****DECOMPOSITION PRODUCTS:** Thermal decomposition may yield the following: Hydrogen chloride, oxides of sulfur and nitrogen.**SECTION 11 - TOXICOLOGICAL INFORMATION**

Ceriodaphnia dubia (waterflea): 48hr, LC50s: 8.77 ppm

Ceriodaphnia dubia (waterflea): 96hr, LC50s: 7.88 ppm

Pimephales promelas (fathead minnow): 48hr, LC50s: 9.84 ppm

Pimephales promelas (fathead minnow): 96hr, LC50s: 9.56 ppm

**SUSPECTED CANCER AGENT:** The components of this product are not found on the following lists: FEDERAL OSHA Z LIST, NTP, IARC, or CAL/OSHA and therefore are not considered to be, nor suspected to be, cancer-causing agents by these agencies.**IRRITANCY OF PRODUCT:** This product is very irritating to skin, eyes and respiratory system.**SENSITIZATION TO THE PRODUCT:** This product may cause allergic skin reactions (e.g., rashes, welts) in sensitive individuals.**SECTION 12 - ECOLOGICAL INFORMATION****ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.****ENVIRONMENTAL STABILITY:** The components of this product will slowly degrade under ambient environmental conditions to other organic compounds.**ECOLOGICAL DATA:**

No data available

Material is considered biodegradable.

**BIOLOGICAL EXPOSURE INDICES:** Currently, Biological Exposure Indices (BEIs) have not been determined for the components of this product.**SECTION 13 - DISPOSAL CONSIDERATIONS****DISPOSAL:** P501: Dispose of contents/container in accordance with local/regional/national/international regulations.**SECTION 14 - TRANSPORTATION INFORMATION****PROPER SHIPPING NAME**

**DOT:** UN3265, CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.  
 (5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE), 8, PG II  
 Emergency Response Guidebook, Guide No.: 153  
 Passenger Aircraft Qty: 1L  
 Cargo Aircraft Qty: 30L

**IMDG/IMO:** UN3265, CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.  
 (5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE), 8, PG II

**IATA/ICAO:** UN3265, CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.  
 (5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE), 8, PG II



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**ENVIRONMENTAL HAZARDS**(i.e., **MARINE POLLUTANT**): No data available for this product.**TRANSPORT IN BULK** (according to annex II marpol 73/78 and the IBC code): Not applicable**SPECIAL PRECAUTIONS FOR USER**: None known.

PRODUCT REQUIRES CORROSIVE LABEL

**SECTION 15 - REGULATORY INFORMATION****United States and International Regulations**

**United States Regulations: U.S. SARA REPORTING REQUIREMENTS:** The components of this product are subject to the reporting as listed below, requirements of Sections 302, 304, and 313 of Title of the Superfund Amendments and Reauthorization Act:

**CHEMICAL NAME**

MAGNESIUM NITRATE	SARA 302 (40 CFR 355, Appendix A) - NO SARA 304 (40 CFR Table 302.4) - NO SARA 313 (40 CFR 372.65) - YES
5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE	SARA 302 (40 CFR 355, Appendix A) - NO SARA 304 (40 CFR Table 302.4) - NO SARA 313 (40 CFR 372.65) - NO
2-METHYL-4-ISOTHIAZOLIN-3-ONE	SARA 302 (40 CFR 355, Appendix A) - NO SARA 304 (40 CFR Table 302.4) - NO SARA 313 (40 CFR 372.65) - NO
MAGNESIUM CHLORIDE	SARA 302 (40 CFR 355, Appendix A) - NO SARA 304 (40 CFR Table 302.4) - NO SARA 313 (40 CFR 372.65) - NO

**U.S. Regulations**

**U.S. SARA THRESHOLD PLANNING QUANTITY:** There are no specific Threshold Planning Quantities for the components of this product. The default Federal MSDS submission and inventory requirement filing threshold of 10,000 lbs (4,540 kg) therefore applies, per 40 CFR 370.20.

**U.S. CERCLA REPORTABLE QUANTITY (RQ):** Not Listed.

**TSCA INVENTORY STATUS:** The components of this product are listed on the TSCA Inventory.

**SARA TITLE III Section 311/312 Hazard Category:** Acute: YES; Chronic: NO; Fire: NO; Reactive: NO; Sudden Release of Pressure: NO

**STATE REGULATIONS:**

**CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65):** No component of this product is on the Proposition 65 List.

**International Regulations****CANADIAN REGULATIONS:**

**CANADIAN DSL/NDL INVENTORY STATUS:** The components of this product are on the DSL Inventories or are exempt from listing.

**CANADIAN WHMIS CLASSIFICATION:** Not classified.

**SECTION 16 - OTHER INFORMATION****PREPARED BY:** GARRATT CALLAHAN**DATE OF REVISION:** 5/21/2013 Supercedes: 6/8/2012

Formula 315 is EPA-registered; with EPA Reg. No. 8540-23. Refer to the approved label for details.

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user's intended purpose or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose.

WATER TREATMENT EXPERTISE SINCE 1904

FORMULA 315

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# **WEST R-630**



## Safety Data Sheet WEST R-630

### SECTION 1: Identification

#### 1.1 Product identifier

Product name WEST R-630 Sulfite  
 Product number R-630

#### 1.2 Recommended use

An aqueous solution of sodium and potassium sulfites, bisulfites and metabisulfites designed specifically for halogen removal in process water systems.

#### 1.3 Supplier's details

Name Water & Energy Systems Technology, Inc.  
 Address 13109 Arctic Cr.  
 Santa Fe Springs, CA 90670  
 Telephone (562) 921-5191

1.4 Emergency phone number(s) Chem-Tel (U.S.): (800) 255-3924

### SECTION 2: Hazard identification

#### 2.1 Classification of the substance or mixture

**GHS classification in accordance with OSHA (29 CFR 1910.1200)**

- Skin corrosion/irritation (chapter 3.2), Cat. 3
- Eye damage/irritation (chapter 3.3), Cat. 2B

#### 2.2 GHS label elements, including precautionary statements

**Signal word**

**Warning**

**Hazard statement(s)**

H316

H320

Causes mild skin irritation

Causes eye irritation

**Precautionary statement(s)**

P332+P313

P264

P305+P351+P338

P337+P313

If skin irritation occurs: Get medical advice/attention.

Wash hands thoroughly after handling.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.

If eye irritation persists: Get medical advice/attention.

### SECTION 3: Composition/information on ingredients

### 3.1 Mixtures

This product does not contain any hazardous materials under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.

**Trade secret statement (OSHA 1910.1200(i))**

Specific chemical identity and/or exact percentage of composition has been withheld as a trade secret.

---

## SECTION 4: First-aid measures

### 4.1 Description of necessary first-aid measures

General advice	Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.
If inhaled	Remove to fresh air. If not breathing, give artificial respiration. Get immediate medical attention.
In case of skin contact	Immediately remove clothing under safety shower. Flush skin with large amounts of soap and water. Wash clothing separately before reuse.
In case of eye contact	Flush eye with water for 15 minutes. Get medical attention.
If swallowed	Do NOT induce vomiting. Give victim large quantities of water. Call a physician or poison control center immediately.
Personal protective equipment for first-aid responders	No data available.

### 4.2 Most important symptoms/effects, acute and delayed

No data available.

### 4.3 Indication of immediate medical attention and special treatment needed, if necessary

No data available.

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## SECTION 5: Fire-fighting measures

### 5.1 Suitable extinguishing media

No data available.

### 5.2 Specific hazards arising from the chemical

No data available.

### 5.3 Special protective actions for fire-fighters

No special fire fighting procedures.

---

## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

Wear appropriate personal protective equipment as specified in Section 8.

### 6.2 Environmental precautions

Do not flush to sewer.

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- 6.3 Methods and materials for containment and cleaning up**  
 No data available.

## SECTION 7: Handling and storage

- 7.1 Precautions for safe handling**  
 Use with adequate ventilation. Follow all SDS/label precautions even after container is emptied because they may retain product residues.
- 7.2 Conditions for safe storage, including any incompatibilities**  
 Contents may develop pressure upon prolonged storage. Loosen closure cautiously before opening.

## SECTION 8: Exposure controls/personal protection

- 8.1 Control parameters**  
 No exposure limits noted for ingredient(s).
- 8.2 Appropriate engineering controls**  
 Local exhaust ventilation may be necessary to control any air containments to within their PELs (TLVs) during the use of this product.
- 8.3 Individual protection measures, such as personal protective equipment (PPE)**

**Eye/face protection**

Wear safety glasses with side shields (or goggles) and a face shield.

**Skin protection**

Nitrile rubber, PVC, or Neoprene gloves are suitable protective materials.

**Body protection**

Where splashing is possible, full chemically resistant protective clothing, rubber apron and boots are required.

**Respiratory protection**

NIOSH/MSHA approved air purifying respirator with an organic vapor cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited.

**Thermal hazards**

No data available.

**Environmental exposure controls**

No data available.

## SECTION 9: Physical and chemical properties

### Information on basic physical and chemical properties

Appearance/form	Clear pink liquid
Odor	No appreciable odor.
Odor threshold	No data available.
pH	~6.5
Melting point/freezing point	No data available.
Initial boiling point and boiling range	212 F

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Flash point	No data available.
Evaporation rate	<1 (butyl acetate = 1)
Flammability (solid, gas)	No data available.
Vapor pressure	No data available.
Vapor density	No data available.
Relative density	1.251
Solubility(ies)	Water Soluble
Partition coefficient: n-octanol/water	No data available.
Auto-ignition temperature	No data available.
Decomposition temperature	No data available.
Viscosity	No data available.
Explosive properties	No data available.
Oxidizing properties	No data available.

---

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

No data available.

### 10.2 Chemical stability

Stable under recommended storage conditions.

### 10.3 Possibility of hazardous reactions

No data available.

### 10.4 Conditions to avoid

Generation of heat by reaction with water or acids.

### 10.5 Incompatible materials

Acids, oxidizing materials, halogen compounds, copper, zinc and galvanized metals.

### 10.6 Hazardous decomposition products

Carbon monoxide, carbon dioxide, ammonia, and oxides of nitrogen.

---

## SECTION 11: Toxicological information

### Information on toxicological effects

#### Acute toxicity

No data available.

#### Skin corrosion/irritation

No data available.

#### Serious eye damage/irritation

No data available.

#### Respiratory or skin sensitization

No data available.

#### Germ cell mutagenicity

No data available.

#### Carcinogenicity

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This product's ingredients are not found in the federal or Cal OSHA NTP, or IARC lists of suspected cancer causing agents.

**Reproductive toxicity**

No data available.

**STOT-single exposure**

No data available.

**STOT-repeated exposure**

No data available.

**Aspiration hazard**

No data available.

---

**SECTION 12: Ecological information****Toxicity**

No data available.

**Persistence and degradability**

No data available.

**Bioaccumulative potential**

No data available.

**Mobility in soil**

No data available.

**Results of PBT and vPvB assessment**

No data available.

---

**SECTION 13: Disposal considerations****Disposal of the product**

Dispose of all waste in accordance with federal, state, and local regulations.

**Disposal of contaminated packaging**

Dispose of as unused product.

**Waste treatment**

No data available.

**Sewage disposal**

No data available.

---

**SECTION 14: Transport information****DOT (US)**

Proper Shipping Name: D.O.T. NONREGULATED WATER TREATMENT LIQUID COMPOUND

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**SECTION 15: Regulatory information**

**Safety, health and environmental regulations specific for the product in question**

**SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)**

**FIRE: NO PRESSURE GENERATING: NO REACTIVITY: NO ACUTE: YES CHRONIC: NO**

---

**SECTION 16: Other information****Further information/disclaimer**

The information contained herein is provided in good faith and believed to be correct as of the date hereof. WEST, Inc. makes no representation as to the comprehensiveness or accuracy of the information. It is expected that the individuals receiving the information will exercise their independent judgment in determining its appropriateness for a particular purpose. Accordingly, WEST, Inc. will not be responsible for damages of any kind resulting in the use of or reliance upon such information. No representations, or warranties, either expressed or implied, of merchantability fitness for a particular purpose or of any other nature are made hereunder with respect to the information set forth herein or to the product to which the information refers.



*Environmental Protection & Compliance  
Division*

**Compliance Programs**

Los Alamos National Laboratory  
PO Box 1663, K490  
Los Alamos, NM 87545  
505-667-0666

*Symbol:* EPC-DO: 19-318

*LAUR:* 19-28678

*Date:* **AUG 28 2019**

Dorothy Brown, 6WQ-PO  
U.S. Environmental Protection Agency  
1445 Ross Avenue, Suite 1200  
Dallas, TX 75202-2733

**Subject: NPDES Permit No. NM0028355, 2019 NPDES Permit Re-Application,  
Supplemental Package 4**

Dear Ms. Brown:

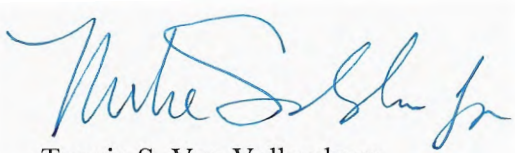
The purpose of this letter is to provide supplemental information, as discussed with the U.S. Environmental Protection Agency (EPA) on July 12, 2019, that is applicable to the renewal of the Los Alamos National Laboratory (LANL) National Pollutant Discharge Elimination System (NPDES) Permit No. NM0028355. Enclosed with this letter is one attachment that provides additional mercury and thallium analytical data for six of the eleven outfalls owned by the U.S. Department of Energy (DOE) and operated by Triad National Security, LLC (Triad).

On August 14 and 15, 2019 Environmental Compliance Programs Group (EPC-CP) collected mercury and thallium samples from Outfalls 001, 03A047, 03A113, 03A181, 03A199, and 04A022. The samples were analyzed at a method detection limit lower than the EPA method quantification limit (MQL) to confirm that they are not believed to be present in the effluent as indicated on the 2019 NPDES Permit Re-Application Form 2Cs submitted to the EPA on March 26, 2019. The results identified that mercury is present at Outfall 03A113 above the MQL. Attachment 1 provides a summary of the results.



If you need additional information or have questions regarding the Permit Re-Application. Please contact Karen Armijo, DOE at (505-665-7314) or Mike Saladen, Triad, at (505-665-6085).

Sincerely,



Taunia S. Van Valkenburg  
Group Leader

TVV/MTS/JKG:jdm

Attachment(s): Attachment 1 2019 NPDES Permit Re-Application – Revised Analytical Data for Mercury and Thallium

Copy: Isaac Chen, EPA, [Chen.Isaac@epa.gov](mailto:Chen.Isaac@epa.gov)  
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## 2019 NPDES Permit Re-Application - Revised Analytical Data for Mercury and Thallium

### Mercury Results - Lower Detection Limit <sup>a</sup>

Sample Location/Type	CLIENTID	COLLECTDATE	ANALYTE	MATRIX	METHOD	Filtered?	Dilution	RESULT	QUAL	UNITS	MDL	EPA MQL	MQL Units	Status
NPDES Outfall 01A001	NP001-19-184759	8/15/2019	Mercury, total	W	M1631, Atomic Fluore	UF	1	2.7		ng/l	0.2	5	ng/L	Believed NOT Present
QA Sample - Cert Water	NP001-19-184761	8/15/2019	Mercury, total	W	M1631, Atomic Fluore	UF	1	0.2	U	ng/L	0.2	5	ng/L	Believed NOT Present
QA Sample - Millipore Water	NP001-19-184762	8/15/2019	Mercury, total	W	M1631, Atomic Fluore	UF	1	0.2	U	ng/L	0.2	5	ng/L	Believed NOT Present
NPDES Outfall 03A048	NP048-19-184763	8/14/2019	Mercury, total	W	M1631, Atomic Fluore	UF	1	0.9		ng/L	0.2	5	ng/L	Believed NOT Present
NPDES Outfall 03A113	NP113-19-184765	8/14/2019	Mercury, total	W	M1631, Atomic Fluore	UF	5	11		ng/L	1	5	ng/L	Detected - Believed Present
NPDES Outfall 03A181	NP181-19-184767	8/14/2019	Mercury, total	W	M1631, Atomic Fluore	UF	1	0.2	U	ng/L	0.2	5	ng/L	Believed NOT Present
NPDES Outfall 03A199	NP199-19-184769	8/14/2019	Mercury, total	W	M1631, Atomic Fluore	UF	1	2.7		ng/L	0.2	5	ng/L	Believed NOT Present
NPDES Outfall 04A022	NP022-19-184771	8/14/2019	Mercury, total	W	M1631, Atomic Fluore	UF	1	0.3	B	ng/L	0.2	5	ng/L	Believed NOT Present

a. Mercury was previously analyzed using EPA Method EPA245.1/245.2 and a detection limit of 0.067 ug/L. This detection limit was higher than the EPA MQL so we performed a second analysis using the method indicated to determine if mercury was present. This method has a detection limit that is lower than the EPA MQL.

### Thallium Results - Lower Detection Limit <sup>a</sup>

Sample Location/Type	CLIENTID	COLLECTDATE	ANALYTE	MATRIX	METHOD	Filtered?	Dilution	RESULT	QUAL	UNITS	MDL	EPA MQL	MQL Units	Status
NPDES Outfall 01A001	NP001-19-184760	08/15/2019	Thallium	W	SW-846:6020B	UF	1	0.442	J	ug/l	0.0116	0.5	ug/L	Believed NOT Present
NPDES Outfall 03A048	NP048-19-184764	08/14/2019	Thallium	W	SW-846:6020B	UF	1	0.190	J	ug/L	0.0116	0.5	ug/L	Believed NOT Present
NPDES Outfall 03A113	NP113-19-184766	08/14/2019	Thallium	W	SW-846:6020B	UF	1	0.261	J	ug/L	0.0116	0.5	ug/L	Believed NOT Present
NPDES Outfall 03A181	NP181-19-184768	08/14/2019	Thallium	W	SW-846:6020B	UF	1	0.212	J	ug/L	0.0116	0.5	ug/L	Believed NOT Present
NPDES Outfall 03A199	NP199-19-184770	08/14/2019	Thallium	W	SW-846:6020B	UF	1	0.282	J	ug/L	0.0116	0.5	ug/L	Believed NOT Present
NPDES Outfall 04A022	NP022-19-184772	08/14/2019	Thallium	W	SW-846:6020B	UF	1	0.0806	J	ug/L	0.0116	0.5	ug/L	Believed NOT Present

a. Thallium was previously analyzed using EPA Method EPA200.2 and a detection limit of 0.6 ug/L. This detection limit was higher than the EPA MQL so we performed a second analysis using the method indicated to determine if thallium was present. This method has a detection limit that is lower than the EPA MQL.